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To Collect the Perfume of Flowers.

The ordinary mode of obtaining the perfume of flowers is by distillation; this plan has been adopted for many ages. Shakspeare tells us that—

Flowers distill'd, though they with winter meet,
Leese but their show, their substance stilllives, sweet.

Or, in plain prose, that by distilling flowers we may possess their sweetness in winter, when their beauty has passed away.

The odor of flowers is owing to a minute portion of a volatile oil being constantly generated, and thrown off by the plant.—This perfume is termed an *essential* oil by chemists. When the flowers are distilled with water, the essential oil rises with the steam, and is condensed with it in the still worm. The following plan of procuring the odors of plants is entirely upon a different principle to the above, and, being devoid of apparatus, will be found a delightful and economical amusement to a vast number of our readers who possess gardens. In all gardens there are flowers that—

Waste their fragrance in the desert air.

And there is no reason why it should not be collected by the following easy method. In the first place, the flowers must be gathered, and that with as little stalk as possible, then place them in a jar three parts full of sweet olive or almond oil; after the flowers have been in the oil from twelve to twenty-four hours, the whole must be put into a coarse cloth, and the oil forcibly squeezed from them, then fresh flowers must be added, and this process repeated for several days, according to the strength of the perfume desired. When the odor of only one flower is required, an incredible quantity of flowers are necessary to produce a scented oil, and for that purpose they would require special cultivation.

The amateur can only expect to produce a mixed perfume, *millefleur* (or "thousand flowers,") as the French call it. Thus he may use most flowers that come to hand having an odor. It is better to choose for this purpose all the smaller kinds, such as sweet pea, mignionette, stock, clove pink, clematis blossom, &c. Lily of the valley, roses, and the larger blossoms, are not applicable for use by the novice, as they take up more room than is compensated for by the odor they impart. The sweet or fat oil being thus thoroughly perfumed with the essential or volatile oil of the flowers, is to be mixed with an equal quantity of pure rectified spirit, and shaken every day for a fortnight; at that time it may be poured off quite bright, and will be found highly charged with the odoriferous principle previously in the sweet oil The perfumed spirit thus obtained completes the process. It is as well to state, that those flowers which are just going off their bloom are as applicable as those in their prime. Thus the garden need not be robbed of its beauty.

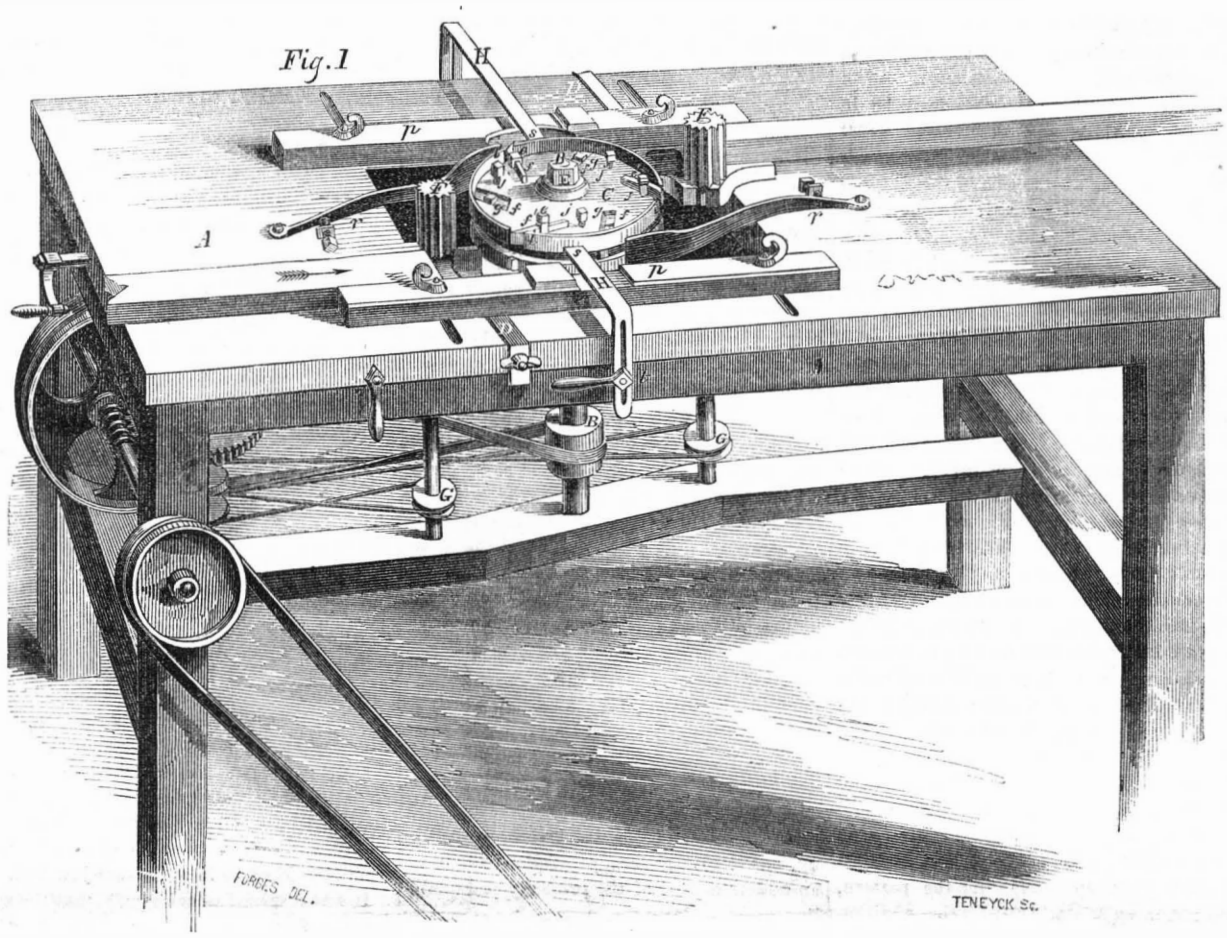
"Of their sweet deaths are sweetest odor made."

SEPTIMUS PIESSE.

London.

MORSE'S DOUBLE-ACTING SASH AND MOLDING MILL.

Fig. 1



The accompanying engraving is a perspective view of an improved machine for sticking sash, blind slats, &c., for which a patent was granted to C. B. Morse, of Rhinebeck, N. Y., on the 16th of January last.

The figure represents a machine as it stands in the factory ready for use, excepting having on the cap, it being removed to show the interior of the cutter head. The object of this machine is to cut moldings on two separate pieces of stuff at the same time, with *one* cutter head, thereby finishing sash bars, mountings, blind slats, &c., before leaving the machine—one piece passing the cutter head to the right, and the other to the left simultaneously, the machine in this manner doing double the quantity of work of machines heretofore employed for the same purpose, without extra expense, and work of a superior quality, as the molding on each side of a piece is an exact duplicate of the other.

A is the top of the machine. When in operation the cap covers the machinery of the cutter head, prevents all danger to the attendant, and conducts chips under the machine through an opening, so that they are never scattered about the shop; B is a vertical shaft, having its bearing in a transverse cross-piece on the upper part of the frame, and its foot in a cross-piece under the table; C is the cutter stock upon the upper end of shaft, B. It is formed of two flanged disks so constructed that while they are made adjustable to accommodate different thicknesses of sash stuff, there will, by its rotation, be a partial vacuum created in its interior, (the cutter stock) and the inward draught thus formed, will pass the edge of the cutters, and remove the shavings from them as soon as formed, and thus admit of the cutters acting twice during each revolution of the cut ter head, without clogging or injuring the stuff; *g g* are slots through the upper disk to allow the cutters, *f f f*, which are attached to the lower disk, to project up behind the flange of the slotted disk, so as to present a cutting edge over the whole space which is made by the opening or closing of the disks; *j j*, are set screws to open or close the disk, in combination with the tightening nut, E, on the cutter shaft, B; F F are feed rollers having their upper bearings in the frame, and their lower ends in the cross piece under the same; D D are adjustable shields placed in grooves in the top between the feed rollers and cutter head. They form mouth pieces to the cutters and prevent the feed rollers from lifting the stuff when passing over the ends of it; *p p* are guides to conduct the stuff through the machine; *r r* are springs resting against the molding on each side of the cutter head; H H are springs placed opposite one another, and press upon the side of the stuff, holding it down to the bed, and the exact cutting point, *s*.

Motion is communicated to the feed rollers by belting passing over pulleys, G G, from pulleys on the small vertical shaft that receives rapid motion by gearing from the main shaft on the end of the machine. The top of the machine is raised and lowered by the crank handle shown above the driving pulley; from the latter there passes the belt that drives the cutter shaft, B. The machine is exceedingly compact, and embraces two valuable improvements secured by as many claims, viz., the construction and combination of the disks and cutters described, to produce an inward current, thereby causing the instant freeing of the shavings from the cutters, and allowing them to act twice on two separate pieces of stuff, as shown, during one revolution of the cutter shaft, also the adjustable shields, D D, in combination with the feed rollers, for the purpose specified.

Mr. Morse has devoted his attention to improvements in such wood-cutting machines for a number of years, and has great practical experience in operating them; he is therefore well acquainted with their defects, and the remedies required to make them more perfect in all their details.

More information may be obtained by letter addressed to the patentee at Rhinebeck, N. Y., where a machine may be seen in operation, which Mr. Morse assures us only wants to be seen to be appreciated.

Vermont Gold.

The gold establishment at Bridgewater, Vt., about which some persons made such a blustering at what we had asserted, viz., that it would turn out to be a delusion, has "burst up," just as we pronounced it would. A 30 horse power engine was put up to crush the gold quartz, which after working for some time during the past winter, has finally ceased to run. We have been informed that from $15,000 to $20,000 dollars were expended on the project. All that was obtained from the gold mine was a few feeble gold specimens, no more, we suppose, than may be obtained from any quartz vein in the world. It contained about as much gold as paid for the powder which was used for blasting it out, allowing nothing for labor.

True Education.

The object of all true education is to vitalize knowledge. Some teachers instruct their scholars very thoroughly, who never educate them at all. They teach them to commit the rules of their arithmetic or grammar by heart, but never lead them to comprehend a single principle; make them learn thousands of names of places, without giving them any idea of geography.

The Largest Clock.

The largest clock, it is said, that was ever constructed, has recently been finished by Mr. Dent for the new Houses of the English Parliament. The dials are twenty-two feet in diameter; the point of the minute hand will therefore move nearly fourteen inches every minute, the pendulum is fifteen feet long. The hour bell is eight feet high, and weighs fifteen tuns. The hammer weighs four hundred weight. The clock, as a whole, is eight times as large as a full-sized cathedral clock.

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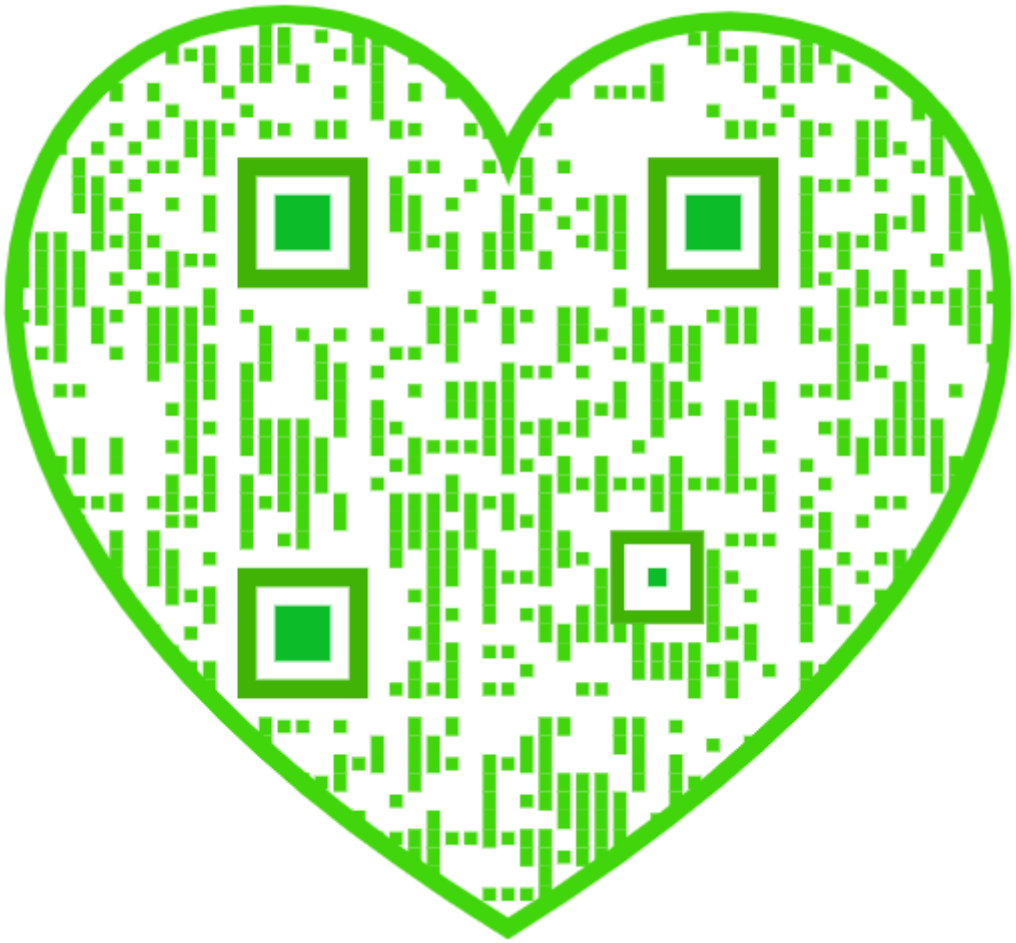

The Art of Dyeing—No. 17.

GREEN COLORS—In our last article we completed the description of binary colors produced by the combination of the red and blue rays. We will now proceed to describe the methods of dyeing the binary color composed of the red and yellow rays, called "green."

GREEN ON COTTON—If we prepare cotton by dyeing it blue in the indigo vat, as described on page 62, then preparing it with a mordant, and dyeing a yellow on the top of the blue, we shall obtain a green. If we want a light green, a light blue shade is first dyed on the goods for the base, and according to the darkness of the shade wanted, so is the blue toned.

BARK GREENS—The blue vat must be in good order—clear and sharp—and great care must be observed in handling the goods in the vats; whether they be in the state of yarn or pieces. It is a nice job to put on the exact depth of shade in the blue vat to match a pattern, but the dyer must be able to do it, or he cannot be called a good tradesman. To do this, no rule can be laid down on paper; the skill of the eye is required.

When the proper blue shade is acquired, the goods receive a weak sour in dilute sulphurie acid, and are then washed. After this they are handled in a mordant of alum pyroligneous acid, at 2° Twad., for fifteen minutes, lifted up, squeezed or wrung, and are then run through a tub full of water at about 100° temperature, after which they are made ready for receiving the yellow dye. This consists of a decoction of quercitron bark, about five pounds to the ten of goods. They are handled in this for fifteen minutes, are lifted, and get a little raising of about a pint of alum liquor (2 ounces of alum dissolved for every 10 lbs. of goods.) They are entered in this, and handled for fifteen minutes longer, when, if they have acquired the proper shade, they may be lifted up, and prepared for drying in the stove room. If it is found while giving the bark, that the blue bottom is not deep enough for the pattern, the goods may be darkened by the addition of a little logwood liquor; but if much of this is used, it will make the color somewhat rusty.

FUSTIC GREEN—Instead of using quercitron bark to produce the yellow color on the top of the blue, fustic may be substituted, but it will take about twice the quantity to produce the same effect. It is a more permanent yellow, however, and for the dyeing of umbrella covers it is preferred.

A very excellent mordant for quercitron bark and fustic, for greens, may be made of alum and the acetate of lead. Dissolve about 50 lbs. of alum in a tub, and then add 2 lbs. of dissolved sugar of lead, and let the solution settle. Use the clear at 20° in the hydrometer. It makes no matter how strong the mother vat may be, when the working tub is kept at its proper strength.

LOGWOOD GREEN—For ten pounds of cotton take the liquor of four pounds of boiled logwood and six pounds of fustic, enter the goods, and handle for fifteen minutes longer. Lift them, and give them the liquor of one pound of sumac, and one pound of sulphate of copper (blue vitriol.) Handle in this for twenty minutes, then lift, wash, and prepare them for drying. This is a very good plan of dyeing a cheap green for rag carpets. It can be made dark or light in shade, according to the quantity of dye stuffs used. It does not stand exposure to the sun. A finer color is produced from quercitron bark when scalded than boiled (this is the case, in fact, with most of the dye woods;) hence, for light shades of green, this bark should never be boiled.

Bancroft describes a green indigo (a sample of which he had given him) which had been sent from the East Indies, and was stated to have been obtained from a tree, but substances producing a blue and yellow separately, are always used to dye a green color, which is the more remarkable, seeing that nature is so prolific with green.

CHEMIC GREEN—Light green shades are dyed on buckram, linings, and thin cotton pieces, by neutralized chemic, and fustic. The chemic is prepared by dissolving some of the sulphate of indigo in water, in a vat, then adding chalk or whiting until the acid is neutralized. The clear is then used to dye green in combination with fustic, in a tub, all together. This chemic cannot dye a deep green, but the color is very clear, if carefully dyed. It is raised with alum in the tub. Quercitron bark may be substituted for the fustic. The best mode of dyeing this color, is to prepare the pieces in a weak mordant of the sulphate of lead and alum, then give them one tub of warm water, and dye the yellow for the base. The neutralized chemic is given on the top, in a tub of clean cold water. Great care is necessary in neutralizing the acid of the chemic by the chalk.

Chrome green will be described in our next.

[Correspondence of the Scientific American.]

Carriage Painting and Varnishing Again.

On page 187, SCIENTIFIC AMERICAN, I see that J. R. G., of Ohio, has been led to spend his "time and money for nothing," trying to correct my article on painting, on page 137, and if you will allow me a little space in your valuable paper, I will make some corrections to that article, and write something more, all of which may prove useful to your correspondents.

Commencing thirty-six lines from the bottom of the first column, it should read, "but all painting cannot be done in cold weather, and the question occurs, can it be well done in warm weather? It can, by using very thin paint, &c."

The thirteenth and twelfth lines from the bottom of the same column, should read, "reduce to proper consistence with turpentine, &c."

The sentence near the close, to which J. R. G. takes exceptions, needs no correction, as every person "skilled in the art of coach painting," knows that copal varnish is "the best kind of coach varnish."

My object in writing the article on painting was to give general principles to help to an understanding of the property and qualities of the articles used by painters, which would enable them to prepare paint for any purpose they might desire; but for the benefit of J. R. G., and those not skilled in the art of coach painting, I will be a little more particular on that subject. But, first let me say, that no man can be taught by a recipe to do the best quality of coach painting, or make the various qualities of copal varnish with the facility of practiced hands, and my object will be to give such instructions as I think best suited to such as cannot obtain experienced workmen.

For filling or priming carriage or buggy bodies, grind yellow ocher with linseed oil quite stiff, add, *drier* in proportion, about half a pint to a gallon of paint; thin with turpentine, or use oil well boiled with a quarter of a pound of litharge to the gallon, and use no other drier. Put on three coats of this paint, giving time to dry hard, and sand-paper well between coats. When thoroughly dry and hard, rub down with pulverized pumice stone and water; use a piece of wool hat or thick cloth for rubbing. Then put on three coats of copal (best coach) varnish, rubbing down between the coats with a coarse linen cloth. When dry and hard, having stood several days (and the better if exposed to the sun most of the time, during the whole process,) rub again with pumice stone to a smooth even surface, then finish with a coat of flowing varnish, if you have it, or a coat of any good varnish will look well; this is rubbed down with rotten stone, in the same manner as with the pumice stone. Clean off well, and moisten a bit of silk velvet with sweet oil, and rub over until you have a gloss finish; rub off with a silk handkerchief and you will have a finer polish. No person should undertake to make copal varnish from a recipe, but I will try to assist such as do try to make it:—Use a copper kettle, put in five pounds of scraped gum copal, dissolve with a regular heat over a charcoal fire, stirring with an iron rod; when cooled a little, so as not to scorch the oil, add a quart of well-boiled linseed oil, and when cooled enough to be safe from taking fire, pour in slowly, stirring constantly, turpentine enough to make two gallons varnish. This varnish will come as near answering every purpose for carriages, chairs, and furniture, as any that can be made. But to make copal varnish of different qualities, it is necessary to know that the less oil is used the quicker and harder the varnish will dry, and the more oil, well boiled, the tougher and better calculated to stand the weather. For cheaper varnish, use an inferior quality of gum copal, and adulterate with rosin. To dissolve the rosin, put the oil and rosin in any kind of kettle together, it is easily dissolved; use oil and turpentine in same proportions as in copal varnish. It has a good gloss, and does not injure copal varnish, only in its quality to resist the action of water. Furniture varnish is much adulterated in this way, to cheapen it.

Every person should learn the qualities and nature of all the articles used in paints and varnishes, in order to do good work.

A. W. H.

Platte City, Mo.

Southern Railroads.

A convention of the officers of the various Southern railroads was recently held in Augusta, Georgia. The lines represented were Richmond, Fredericksburg, and Potomac, the Richmond and Petersburg, the Wilmington and Raleigh, the Wilmington and Manchester, the King's Mountain, the South Carolina, the Georgia and La Grange Roads, the Waynesboro', the Central, the Macon and Western, the Southwestern, the Muscogee, and the Montgomery and West Point Road.

The existing rate of fare of $15,50 from Wilmington to New York. and $21,50 from Wilmington to Montgomery, were re-affirmed. Messrs. Pollard and Jones, of the Montgomery and West Point Road, were requested to use their best endeavors to obtain a reduction of the fares between Montgomery and New Orleans, so as to make the fare from New York to New Orleans just $50.

It was resolved unanimously, that the system of private expresses, which at present prevails on the various railroad lines, is injurious to the interests of the companies.

The convention adopted a resolution declaring itself a permanent organization, to be known as "The Southern Railroad Association," its objects being to promote the interests of Southern railroads, and its members are to consist of the presidents and superintendents of the same. The next regular meeting will be held in Augusta, the second Wednesday in December next.

We are gratified to be able to state that the cars on the East Tennessee and Georgia Railroad are now running to Lenoir's, six miles this side of Loudon, and the same distance on this side of the Tennessee river. The heavily and richly freighted trains now pass in splendid array over the magnificent bridge which now spans the noble Tennessee at Loudon. This bridge, as a work of art, is pronounced by common consent, equal, if not superior to any bridge of the kind in the entire South. It is indeed a magnificent monument to Southern enterprise, energy, and utility. The Iron Horse is now within twenty-two miles of Knoxville, and in a very few months we hope to give him such a welcome at this, the grand junction of four of the principal railways of the Union, as is worthy of his importance, the realities of the occasion, and the inspiring prospects of the future, produced by his triumphant approach.—[Charleston (S. C.) Mercury.

Greatest Depths of Mines.

Wheal Abraham attained (rather more than 20 years ago) a depth of about 242 fathoms, or 1,452 feet (a fathom being 6 feet); Dolcoath Mine had reached 235 fathoms; Tresavean copper mine is gradually becoming extraordinarily deep, and it is last reported as being 2,112 feet under the surface, and about 1,700 feet below the level of the sea. The Consolidated Mines are 300 fathoms (1,800 feet) deep, and the United Mines 280 fathoms below the adit level. Let the reader realize these depths by imaginary pilings of the highest buildings, as St. Paul's and the Monument, on themselves a sufficien number of times to attain the respective amounts! Speaking of mines generally, the Eselschact Mine at Kuttenberg, in Bohemia, now inaccessible, was deeper than any other mine, being no less than 3,778 feet below the surface. Its depth is only 150 feet less than the hights of Vesuvius, and it is eight times greater than the hight of the pyramid of Cheops, or the cathedral at Strasburg. The bore of the salt works of Minden, in Prussia, is 2,231 feet deep, and 1,993 feet below the level of the sea. Mines on high ground may be very deep without extending to the sea level. That of Valenciana, near Guanaxuato in Mexico is 1,686 feet deep; yet it is 5,960 feet above the level of the sea, and the mines of the Andes must be much more. For the same reason the rich mine of Joachimsthal, in Bohemia, though 2,120 feet deep, has not yet reached the sea level. The fire-springs at Tseu-heu-tsing, in China, are 3,197 feet deep, but their relative depth to the sea level is unknown. How insignificant are the works of man compared with nature! A line 27,600 feet long did not reach the bottom of the Atlantic Ocean.—[London Mining Journal.

California Academy of Sciences.

At a recent meeting of the above named Institution (as we learn by our excellent cotemporary the *Pacific*,) held in San Francisco on the 26th of February, a species of yellow honeysickle—native to the country—was presented by D. Andrews. Dr. Wm. C. Ayres presented a specimen of a new generic type among fishes, which has been named *anarrhichthys ocellatus* Ayres. It has a very long body in proportion to its thickness, being nineteen times the length of its greatest thickness, thus resembling the eel, but in other respects it is very different. It is very rare; only two specimens of it have yet been seen.

Extinguishing Fires.

The patent granted this week to William Loughridge, of Weverton, Md., for a method of extinguishing fires, relates to a certain arrangement of pipes and other apparatus, by which water may be forced at a moment's notice from a reservoir or fountain to any part of a city, town, or district, to extinguish fires by means of a stationary steam or other engine. The same arrangement admits of the necessary supply of water for all other purposes—domestic and manufacturing—without interruption during the time it is used for the fire.

Railroad Brakes.

Mr. Loughridge, as will be seen in the list of claims, has also obtained a patent for an improvement in railroad brakes; this improvement relates to the operating of the brakes of one carriage, whereby all the brakes of a train will be operated by the train's momentum, which is made to wind a chain on a drum, so as to draw simultaneously upon all the brakes. A means is also provided to prevent the cars crowding upon one another when the brakes are applied; and the degree of force brought into action can be regulated at will.

An Inventive Editor.

Mr. S. D. Carpenter, Editor of the *Patriot*, Madison, Wis., has lately sold a small portion of the patent right for his excellent pump—illustrated in our journal last week—for the sum of forty-nine thousand dollars. He will probably realize treble that sum for his remaining interest. Patents for good and useful inventions are, after all, about as profitable a species of property as any one can get hold of.

Nova Scotia Coal.

A correspondent of the Boston *Post*, writing from Pictou, N. S., states that a great increase of the coal trade of that region is expected this year. Preparations are making to ship 150,000 chaldrons. Our coal consumption is increasing so rapidly, that it has become difficult for our Pennsylvania mines to meet the demands made upon them. Our Wilkesbarre friends must take a longer pull.

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(For the Scientific American.)

Daguerreotypes without a Camera.

I send you with this two stereoscopic pictures taken by me by means of a box, to be described hereafter, which contained neither lenses, reflectors, nor any refracting or reflecting medium of any kind.

I accidentally made the discovery that photographic pictures could be taken in this manner while prosecuting some experiments relative to Stereoscopic Angles.

It is well known that two pictures taken with two ordinary cameras, placed only 2½ inches apart horizontally, will not, when placed in the stereoscope, show proper or sufficient stereoscopic relief, and yet it is well known that the human eyes are only placed 2½ inches apart, and see solid objects in their proper solidity and relief. To explain the why and wherefore of these facts has challenged the attention of Prof. Wheatstone, Sir David Brewster, and a host of others; leading the above-named gentlemen into a very sharp controversy, leaving the main question—the determination of the proper stereoscopic angles—as far as practical results are concerned, in precisely the same condition in which they found it.

Under the circumstances we may be permitted to ask, why is it that two pictures, taken by two cameras placed 2½ inches apart, do not show sufficient stereoscopic relief? Why is it that we must place the cameras about eight times further apart than the human eyes, in order to produce the proper relief? When these questions first suggested themselves, the following answer occurred to me (without, at that time, being able to prove it to be the correct one,) namely:—"because the lenses in the camera (¼ size) are twelve times larger than the human lenses (eyes.)"

In order to ascertain whether this was the correct answer or not, it was only necessary to take two pictures with two cameras, having a diaphragm in each, the openings of which were ⅛ of an inch in diameter, that being the diameter of the diaphragm of the human eye. In executing this experiment I was very much surprised to find that the focal range of the camera was increased to an extraordinary extent. The cameras had been focussed for a house on the opposite side of the street, but the moment the diaphragm was introduced, the sash in the window, which before was invisible, suddenly became as sharp and distinct as the house on which the focus had been previously drawn. Subsequently on removing the camera to an upper story of my house, it was found that this increase in focal range extended not only from the house towards the camera, but also to an equal extent beyond the house. After ascertaining these facts it became desirable to find out the causes of them. With this end in view the lenses were removed from the tube, and only the diaphragm remained in it. You may well imagine my astonishment at finding the pictures of houses and other objects in the street, faithfully depicted upon the ground glass! The letters of signs, &c., were reversed precisely as if lenses had been used. The next step was to ascertain whether these pictures possessed photogenic properties, which was soon done by substituting a metal diaphragm with an aperture of 1-50 of an inch in diameter, for the paper one of ⅛ of an inch in diameter, putting in a coated plate, allowing it to remain for 15 minutes, and coating it with mercury in the usual manner. The result was a beautiful picture similar to the one I herewith have sent you.

It was self-evident now that we had the means to do that with one camera, for which two were before deemed indispensable, namely, taking two stereoscopic pictures through two apertures situated only 2½ inches apart; but as a ¼-size plate is only 4¼ inches long, and as it was desirable to take the two pictures on one plate, two apertures 1-66 of an inch in diameter were made in the metal plate above alluded to, only 2¼ inches apart. After 20 minutes exposure, the sun shining on the house all the time, the pictures which I send you were the results, thus demonstrating conclusively that two stereoscopic pictures can be taken on one plate, with one camera (or dark chamber without lenses) and simultaneously, without either reflectors or refractors of any kind whatsoever. It may here be remarked, however, that the pictures thus taken on one plate are stereoscopic reverse, that is to say, the right picture is on the side where the left one ought to be, and vice versa, which can, however, be very readily remedied by cutting the plate in too and pasting them together again properly. This stereoscopic reverse was next attempted to be remedied by placing a reflector before the apparatus, but the only effect produced by this device was the same as the reflector produced upon pictures taken by an ordinary camera, viz., making the pictures appear in their natural position, so that letters on signs, &c., could be read correctly.

There is another advantage resulting from this camera, it is this: you may make two, four, six or more sets of holes in the same camera, either all of the same diameter, by which means you will obtain an equal number of stereoscopic pictures with the number of sets of holes, or you may make one set with an aperture 1-200 of an inch, another 1-100 of an inch, one set 1 70 of an inch, and still another set with 1-25 of an inch in diameter, when you will be almost certain to obtain at least one set of pictures properly "timed," especially as the other pictures which are not properly timed, can be rubbed out before gilding, thus saving the plates.

So much for the actual experiments. Let us see what practical conclusions can be derived from them.

A theoretical eye occupies no more room than a mathematical point. The diaphragm in the human eye is ⅛ of an inch in diameter. The lenses commonly employed in taking photographic pictures vary from 1½ to 6 inches in diameter.

What is the theoretical difference between these three kinds of eyes? What the practical difference?

A board one foot square placed 5 feet distant before a theoretical eye, will obscure or eclipse a space of 576 square inches of a background 10 feet from the eye. The same board, under the same circumstances, placed before the human eye will obscure only 564 square inches. Whereas, if it be placed before a ¼-size camera, under a like condition, it will only obscure 495 square inches? A double whole size camera, with lenses 6 inches in diameter, will merely obscure 3·24 square inches. From this it is apparent that a picture taken with a camera with lenses larger than the human eye, will show more of the object than the eye placed in the same position. A man can place one of his eyes in such a position that he can see only one ear and a portion of the face of a person. A camera, placed in precisely the same position, will take a picture in which not only all the objects which the human eye had previously seen, but also the other ear, &c., will be clearly delineated. Such pictures are anti-stereoscopic; distortions; disfigurations intolerable in proportion to what the lens, with which it is taken, exceeds in diameter the size of the human eye. Such pictures will do for owls to look at. The back and (to the human eye) invisible parts of an object are brought out by such large lenses, as full as the natural prominent portions of such objects themselves, and producing by their contrast flat and inanimate pictures, giving to the face, &c., of the subject a broader, longer, and fuller appearance than they appear to the single human eye. We might with the same propriety call the hide of an ox, when spread upon a flat surface, a portrait of that animal, as to call a picture, taken in a camera with such large lenses, a portrait of the "human face divine." Who has failed to notice the immense difference between the large ("the splendid gilt frames," so called) portraits, both on paper and plate, in Broadway, Chestnut, Washington, and Baltimore streets, and the small miniature likenesses frequently met with in medallions, charms, breastpins, &c., taken with a good, small locket camera. The one looks flat, distorted, and inanimate; the other appears to stand and project right out from the plate, ready, as it were, at a moment's calling, to leap into existence as a living being. So much for single pictures. Let us examine double or stereoscopic pictures.

From what has been said, it will be easy to understand how it is that two common pictures taken at an angle no larger than that of the human eyes, do not show sufficient relief, for if it be true that each individual picture is more flat than the same object appears to a single eye, then it is also true that two pictures, when combined in the stereoscope, will present less relief than what two similar pictures would do that had been taken by means of lenses ⅛ inch diameter, or the same size of the human eye. In the human eye we find, as in all other parts of the body, the most extraordinary wisdom displayed, and it is only the hand of Omnipotence that could have designed and constructed such a wonderful organ. Not only do we find a single eye perfect in all its parts, but we also find the two eyes arranged in such a manner as to give the greatest possible amount of effect to binocular vision. Who can devise anything better? To imitate and equal it ought to challenge our undivided attention. Who ever saw an animal with two eyes, each six inches in diameter, and 16 inches or two feet apart? Or who ever saw two small ones forming an angle with the horizon of 45°? (My friends in Boston will forgive me, as I mean them no harm.) But what is the difference, it may be asked, if we can compensate, by simply moving the cameras a little further apart, for this deficient stereoscopic relief? To which I answer, that we can indeed make such compensation, but it is always at a little expense of the truthfulness of the picture. Others will no doubt have noticed, as I have done, the great apparent shift of positions of prominent objects in some modern stereoscopic pictures. These prominent objects in the left picture will be found thrown, as it, were, to the right, whereas, in the right picture, they will be found to the left, straining the eye, in some instances very much, in endeavoring to coalesce them. This is especially true with groves of trees, &c. This difficulty is not experienced when looking at the objects themselves, nor when looking at pictures of such objects when taken, as the one above alluded to, through two small apertures only 2¼ or 2½ inches apart. And I have taken a picture of a street, in which the most prominent object was only one foot from the camera (dark chamber) and the most distant one (Christ Church) at least one mile, yet not only were both in perfect focus (they could not be otherwise) but the eyes could also see them, in the stereoscope, in their proper stereoscopic relief, without experiencing the least contortion or fatigue.

In conclusion, I may say that I think I have proven the superiority of small over large lenses in photography. We can now see that we need not look to the increase in size of the lenses, in our cameras, for the production of large photographic pictures that will at all be entitled to be called correct portraits, but that we must look to the perfection of small lenses, as well as to the quality of the chemicals employed. We want chemicals that will work instantaneously, even with small lenses. The human eye produces instantaneous pictures.

I would suggest a mode of assisting the quick action of small lenses. I would set the subject in the open air, take advantage of all the light that can be obtained. Who will be the first to build a skylight room with the roof and walls removed? J. F. Mascher.

Philadelphia, April 7th, 1855.

A Mill Stone Bursting.

On the 26th ult., a mill stone in rapid motion bursted in the grist mill of U. T. Wooster, at Benton, Ohio, and a piece of about five pounds in weight struck Mr. Wooster in the head, killing him instantly.

Professor Agassiz.

It is stated that Prof. Agassiz has declined an offered Professorship of Natural History in the Edinburgh University, preferring to remain in America, and continue his explorations in the vast field of the Western Continent.

The Proposed Reform of the Patent Laws.

In looking over the Scientific American of the 3rd of March, I was struck with the proposed alteration in the Patent Laws, by the bill advanced by Senator James; and I thought it was a strange thing that a man so high in the public favor as to be elected to a seat in the Senate, should propose anything so diametrically opposed to the interest of the greatest class of inventors; for that it is in opposition to their interests, no sane man will doubt who is acquainted with our country. Mr. James certainly is not very well versed in mechanics, or else he is far from being a friend to the craft. His only object in the bill seems to be "get money by all means;" but if he claims that the revenue of this department is small now, in my humble opinion, his bill would stop it altogether. He ought to know, if he does not, that the majority of patents are taken out by mechanics in moderate circumstances, of which several have come under my own knowledge. Many of our inventors are scarcely able to pay the present very moderate fee, and the cost of models. It seems also that the honorable gentleman has a speedy method in his mind to appropriate the money thus squeezed out of the poor mechanic. I should think that those who wish to increase the Patent Office revenue should be the last to propose a plan which would spend it faster than it could be made, even under such a peculiar nonsensical scale of fees, and I am well convinced that there are few mechanics but will oppose the passage of this bill with spirit, if it is ever again attempted to be imposed upon them. It strikes me, that your proposition of confining the whole matter to our own country would be better. I cannot see what it matters, if samething invented by an American mechanic should have been patented in some foreign country, two or three centuries ago, if not introduced here. It is perfectly absurd that we should pay an army of examiners to look over all mechanical books of all nations, to see whether such a thing is new or not. I sincerely believe, on the whole, that if senators, judges, and commissioners, would pay some attention to the many valuable hints thrown out in part, or at large, in the columns of your excellent journal, that they would do more for the interest of inventors than they ever have done.

J, Day Barrow.

Louina, Ala., March 23rd, 1855.

The Boston Steam Fire Engine.

Messrs. Editors—What has become of the Cincinnati Steam Fire Engine, which made its triumphal march through our city a few weeks ago, on its way to Boston?

Can any of our friends there away enlighten us as to its performance after it was left to itself among strangers? And more especially, what means, or whence comes the report that the corporation has sold it for three thousand dollars?

Hoping that the presentation of these questions will again excite comment on this important subject in your valuable paper, I remain, D. S. M.

New York.

The California Condor.

The high mountains of California are frequented by a species of condor, which, although somewhat inferior in size to the condor of the Andes, is probably the largest bird to be found within the confines of the Golden State. A full grown California condor measures upwards of thirteen feet from tip to tip of its wings, and when in its favorite element, the air, is as graceful and majestic as any bird in the world. They make their homes upon the ledges of lofty rocks, or in the old deserted nests of hawks and eagles, upon the upper branches of lofty trees. Their eggs are each about twelve ounces in weight, and are said to be excellent eating. The barrels of the wing-feathers of the condor are about four inches long and three eighths of an inch in diameter, and are used by the inhabitants of Northern Mexico to keep gold dust in.

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New Inventions.

Seed Sower.

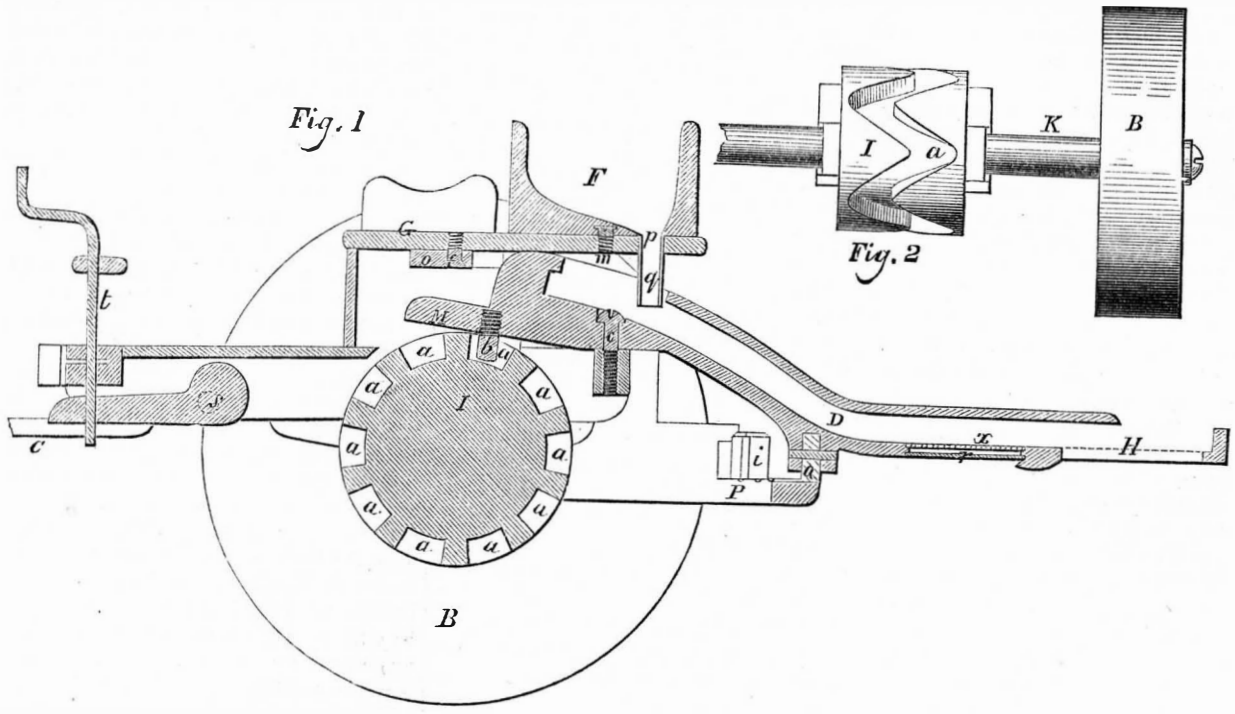
On the 12th of December last a patent was granted to John Andrews, of Winchester, Mass., for a seed sower, and assigned to himself, N. A. Richardson, and Gardner Symmes, of the same place.

Figure 1 is a vertical longitudinal section of the machine, and figure 2 is a detached view of the axle with the grooved drum which gives motion to the sower. Similar letters indicate like parts.

In the seed sowers heretofore contrived, the grain has been delivered from a vibrating tailboard, from which it was suffered to drop upon the land, as the machine advanced. With these machines a very narrow strip only was sowed at a time, and their operation was consequently slow and defective. To obviate this inconvenience, and to produce a machine that shall imitate, as far as possible, the motion of the hand in sowing grain, is the object of this invention, which consists in delivering the grain in the requisite quantity to a hollow trough or scatterer which is caused to swing back and forth round a fixed center, by which means the grain is thrown to a considerable distance upon each side of the path traveled over, and the sowing is performed much more rapidly than the machines heretofore contrived have been capable of.

The machine travels upon wheels, B, and is drawn in the direction of the shafts, C. The grain or other seed is placed in the hopper, F, by the driver of the machine, who is seated upon the box, G, the grain in the hopper, F, passing through the hole, *p*, and pipe, *q*, through the expanding trough or scatterer, D, upon the extreme end of which is the sieve, H, through which it is allowed to pass. In order that the grain may be distributed over a space much wider than the length of the sieve, H, the latter receives a swinging motion, around a fixed point, by which means the seed is thrown to a considerable distance upon each side. This swinging motion is communicated to the scatterer in the following manner ; I is a drum securely attached to the axle, K, and having a zigzag groove, *a*, in which plays a pin, *b*, projecting downwards from the arm, M, secured to the scatterer. The latter is pivoted to the frame of the machine at C, and thus as the drum, I, revolves, the scatterer is vibrated from side to side, and the seed is scattered over a much wider space than would otherwise be the case. In addition to this swinging motion from side to side, the scatterer has also a rapid vertical vibratory motion produced in the following manner : P is a curved way or support upon which the rear portion of the scatterer rests, this way is corrugated or channelled ; Q is a roller upon the under side of the scatterer, which travels upon the corrugated way, P, and thus as the scatterer is vibrated around its center of motion it is also rapidly vibrated in a vertical direction, and the descent of the grain along the trough is facilitated. In order that the axle and drum may be turned by the motion of the wheels, the latter are connected with the axle by means of the toothed clutches, which embrace the axle and are forced up to the wheel by springs, *d*. That the scatterer may be made to vibrate only when the machine is advancing, and not when it is backing, the teeth of the clutches are inclined upon one side, so that when the machine is backed the wheels revolve without turning the axle. And when it is desired to disconnect the wheels entirely from the axle, this may be done by pressing in the handle of the lever, O. This lever is pivoted at *f*, and bears, when pressed in, upon the ends of two arms, which actuate the clutch levers, and release the clutches from contact with the wheels. To relieve the machine from strain, the scatterer is allowed, as it swings to each side, to strike upon the spring stops, *i*, which yield as they are pressed in, and gradually overcome its momentum. In order to adjust the quantity of grain sowed, the hopper is pivoted at a point, *m*, around which it may be moved by the lever, O. By this means the hole, *p*, may be more or less enlarged, or it may be closed entirely. The lever plays over a graduated arc for the purpose of graduating the hopper to sow any desired quantity per acre. It often happens that grain and other seeds to be sown are filled with the seeds of weeds. To remove these and prevent them from being sown with the grain the following device is employed :—A portion of the bottom of the seed trough is cut out, and replaced by a sieve, *x*, of a fineness that shall admit the seeds of weeds to pass through, but not the grain ; beneath this sieve is a box, *r*, in which such seeds are collected to be afterwards disposed of. In windy weather the scatterer must be operated much nearer to the ground than it need be upon a calm day,

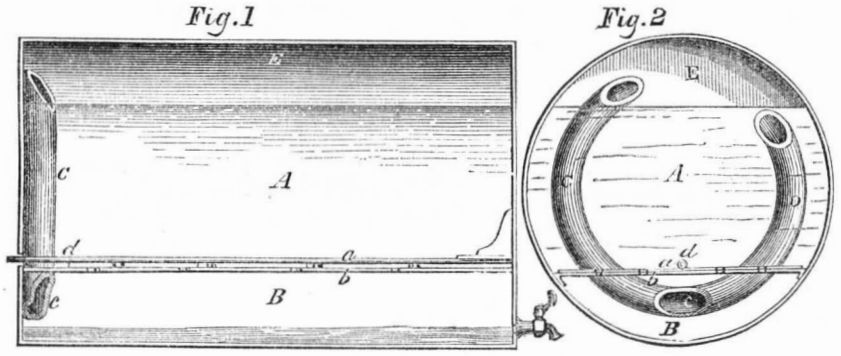
ANDREWS' SEED PLANTER.



in such case the grain will not be thrown to so great a distance upon each side, and the feed of the hopper will require to be diminished in a corresponding degree. To effect this depression the following means are used. The shafts are pivoted to the body of the machine at *s*, around this pivot the shafts and the machine are adjusted to each other by means of the screw, *t*, and thus the extreme end of the scatterer is raised more or less from the surface of the ground as required. It is evident that other means may be adopted for the purpose of swinging or vibrating the scatterer, but the method described has been found sufficient.

More information respecting this invention may be obtained by letter addressed to the inventor at Winchester.

FREEING STEAM BOILERS OF SEDIMENT.



The accompanying figures represent the improvement in cleaning boilers, for which a patent was granted to Hiram Strait, of Covington, Ky., on the 4th inst., and his claim published in the Scientific American, in the list of last week.

Figure 1 is a vertical longitudinal section of a cylindrical steam boiler with the improvement, and figure 2 is an interior view of the back end of the boiler showing the steam blow tube as combined with the sediment chamber. Similar letters refer to like parts.

A is the water chamber or space of the boiler; and E is the steam space above the water line; B is the sediment chamber or space. It is separate from the water space by a perforated partition plate, *b*, of strong boiler metal, which is fitted snug to the boiler all round its edges, and can only communicate with the water space through the perforations, or rows of holes punched in it; *a* is a broad plate, nearly as wide and long as the partition, *b*. It has the same number of perforations as *b*, and when the openings of both are directly above one another, there is free water communication through them between the water chamber, A, and the sediment chamber, B, so that the pressure of the steam is then exerted upon the surface of the water in the boiler. This is the way the plate, *a*, is set, when not blowing off, and during the time sediment may be falling down, as the water is evaporating into steam in the boiler; *d* is a rod attached to the plate, *a*, which latter performs the office of a large slide valve. This rod extends through the end of the boiler in a stuffing box, and may be connected to the engine by chain or rod, or be operated by a hand lever; C D is a curved sectional tube, with an opening, *c*, under the partition, *b*, with which it communicates. The top of one end of this tube is open in the steam space, the other is a little below it in the water space. By pushing in or drawing out the rod, *d*, so as to bring the openings of the valve, *a*, over the blank spaces in the partition, *b*, water communication will be cut off between A and B, and if the blow-off cock at the front end of the boiler be opened, it is evident that the steam will rush down the pipe, C, and force out all the water and sediment in chamber, B, until the water line is lowered to the lip of the arm, D, of the pipe, when steam will then rush down both branches. It is plain that no more than a certain amount of water can be blown out of a boiler to which this apparatus is attached, and it is equally plain that the sediment chamber will be completely swept out and cleansed.—Whenever steam is seen to issue from the blow-off clock, it is closed, and the valve plate, *a*, is pushed in or drawn out, as the case may be, so as to bring the perforations in both plates above one another. The holes in the partition, *b*, and large valve, *a*, may be made to come above one another, by drawing out or pushing in.

The object of this improvement is to make the boiler self-cleaning by making the pressure of the steam expel sediment, scales, &c., in the manner described and shown. The sediment chamber is not intended to be large, only of sufficient size to collect the sediment. This beautiful apparatus appears to be capable of doing all that is claimed for it.

More information may be obtained by letter addressed to the patentee, Mr. Strait, at Covington, Ky.

Winding up Lines, Twist, or Cord.

The claims in this week's list of patents granted to Byron Boardman, and Geo. C. Sweet, of Norwich, Conn., relate to a machine for winding up fishing lines, cord, twist, or any such manufacture, into hanks or skeins, of such length as may be desired for sale or use. The patent embraces six claims, and covers a number of devices and combinations in such machinery. The principal working parts in the machine consist of two hooks, which are placed at a distance apart, corresponding to the length to which the line is to be wound, and a sweep which is capable of rotating round these hooks.—The hooks remain stationary, and the sweep rotates around to lay a sufficient quantity of line around them, when it becomes stationary, and the hooks then rotate to perform the woolding or binding round.

Card Exhibitor and Distributor.

The invention for which a patent has been granted this week to Wright Duryea, of this city, whose claim will be found in the usual list, consists in providing a roller in the lower part of the case, and printing the cards at suitable intervals apart on a long strip of paper, winding it upon the roller. These cards are guided from the roller to an opening in the case, where they are discharged, and each card can be cut off as desired, a portion of the strip being always held by a spring, to allow of it being caught by the thumb and fingers, to pull out the next card.

New Cabin Chair.

The claim on another page, in the patent granted to Wm. Thomas, of Hingham, Mass., relates to a chair for the cabins of vessels, so as to give it the same motion as a hammock. This will be much pleasanter for passengers, and will no doubt prevent many persons from becoming sea sick.

Rose's Straw Cutter.

The improvement on straw cutters, for which a patent was granted this week to Ira Rose, of Akron, Ohio, embraces a peculiar and simple means of operating the cutting knife and feed rollers, by which these are operated by the revolutions of a *cam* only.—The device is simple, and not liable to get out of order.

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Scientific American.

NEW YORK, APRIL 21, 1855.

The Effects of Wind and Water on Climates.

In a short article a few weeks since, we described the peculiar influence of the "Gulf Stream" upon the climates of Western Europe, and presented the opinion entertained by some, that the waters of the *Amazon* river were the cause of this wonderful ocean current. In Lieut. Maury's new volume, "The Physical Geography of the Sea," we find this question discussed with rare ability, and with a profound knowledge of the subject. He compares the Gulf Stream to a water heating apparatus for buildings. "The warm waters," he says, "which are confined in the Gulf of Mexico, is such a heating apparatus for Great Britain, the North Atlantic, and Western Europe." Instead of attributing this stream to the waters of the Amazon, he says, "the furnace is the torrid zone, the Mexican Gulf and Carribean Sea are the cauldrons; the Gulf Stream is the conducting pipe, and its heat is taken up by the genial west winds, and dispersed throughout Britain and the west of Europe." In another place he says, "It is the influence of this stream upon climate that makes Erin the Emerald Isle, and clothes the shores of Albion in ever-green robes; while in the same latitude on this side, the coasts of Labrador are fast bound in fetters of ice." In an article in the *American Journal of Science*, Vol. 45, Mr. Redfield says, "in June 1831, the harbor of St. John's, Newfoundland, was closed with ice; yet, whoever heard of the port of Liverpool, 20° further north, being closed with ice, even in the dead of winter."

It is, indeed, a peculiar arrangement of Him who rules the winds and the waves, that the temperate climates of different countries in Europe are dependent on a hot water sea basin, situated near the American continent, and that this hot water should pass by large tracks of countries on this side of the Atlantic, leaving them bound in icy fetters, and dispense its favors to nations on the other side of the ocean. But so it is, and it requires the winds as well as the waters to distribute those genial favors to western Europe. During the past winter this was displayed in a remarkable manner. For about four weeks easterly winds had prevailed in Great Britain and Ireland, during which period the warmth of the Gulf Stream was prevented from being wafted to those coasts. The result was, that the most intense cold within the memory of man was experienced there; ice formed in large quantities on the sea coast, and, as a world's wonder, the navigation of the rivers Thames and Mersey was greatly obstructed, and the port of Liverpool almost ice bound for some days. In Ireland the effects of this severe cold was such, that thousands upon thousands of small birds—larks thrushes, &c., &c.,—which do not migrate, were found dead in the fields and on the highways. In Scotland, the effects of this severe cold were more wonderful still. Hugh Miller—that eminent geologist and keen observer—in the Edinburgh *Witness* says, "the present intense frost—coincident at new moon with a stream tide—has killed many of the littoral shell-fish around our shores, and they now lie by thousands and tens of thousands along the beach. On the beach below Portobello, and for at least a mile on the western side of the town, they are chiefly of two species, *Solen Siliqua*, or the edible spout-fish or razor-fish, and *Mactra stultorum*, or the fool's cockle, both of them molluscs, which burrow in the sands above the low-water line of stream tides. The spout-fishes, when first thrown ashore, were carried away by pail and basketsfull by the poorer people; and yet of their shells enough remain in the space of half a mile to load several carts; but the fishes themselves, devoured by myriads of birds, chiefly gulls, have already disappeared. It is probable that both species will be less common on our coasts than heretofore, for years to come; and their wholesale destruction by a frost a few degrees more intense than is common in our climate, strikingly shows how simply, by slight changes of climate, induced by physical causes, whole races of animals may become extinct. It exemplifies, too, how destruction may fall upon insulated species, while from some peculiarity of habit, or some hardiness of constitution, their congeners escape."

Had the genial west instead of the dry east winds, constantly prevailed in England during the last winter, the atmosphere of that country would have been moist and warm as usual, and no such severe frosts as that described, would have been experienced. From these new facts, we can form some new and more correct ideas of the effects of winds and waters upon climates; and how they affect the destiny and welfare of nations, and living creatures, on the land and in the sea.

Discovery in Painting with Light.

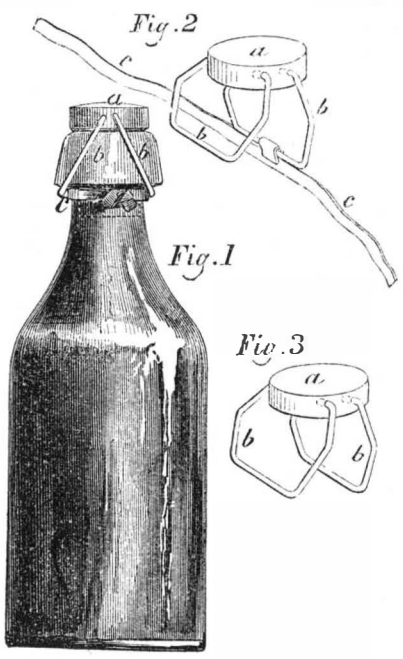
On another page will be found a most interesting article from J. F. Mascher, Esq., of Philadelphia, on new and important discoveries made by him in prosecuting some optical experiments.

Photography has now become one of the most attractive and extensively practiced arts. It is but a few years since the discovery of the Daguerreotype was made in France—we all remember it well, and the wonder that was excited among us when it was first chronicled to the world that a Frenchman had succeeded in taking portraits by the sun. Since that period, the art has flown on the wings of the wind over all nations. There are now hundreds of artists in our principal cities; almost every village has its sunlight limner, and there are quite a number who travel from place to place with movable galleries, to rescue the charms of our village beauties from oblivion, by placing them upon enduring tablets. We look upon the art of photography as one of most delightful and humanizing. It has placed within the reach of the poorest, the means of conveying to one another, or to remote years, the likenesses of those they have loved and esteemed. This was a priviledge which but recently belonged only to the more opulent, who possessed the means to employ the portrait painter. Great improvements have been made in the art within a few years; photographic portraits are now taken, surpassing in correctness the skill of the most practiced portrait painters. And it is not to be supposed that we are at the end of improvement yet; indeed the article referred to on another page, shows us that a new and expansive field for improvement has just been broken.

Coal Burning Locomotives.

The subject of employing coal as a substitute for wood fuel in locomotives, is a question of great importance Many locomotives on various railroads, use no other fuel now, and the time is not very far distant when every railroad in our country must stop using wood. It is believed that many improvements have yet to be made in coal burning locomotives, hence every new one deserves attention. In the list of claims this week, it will be observed that a patent has been granted to Josiah J. Dutcher, of New Haven, Conn., for improvement in coal burning locomotives, embracing three separate claims. One covers an inverted conical water chamber in the fire box, which communicates by pipes at its bottom with the side water spaces, and at its top with the usual water chamber of the boiler, thus keeping up a continual circulation, as this cone is imbedded in the fire, and subject to the most intense heat. It is also believed, that as this cone is inverted, it will prevent the fuel from packing close, and thus allow free draught through the fire at all times. The patent embraces other features, which could not be clearly described without engravings. At a meeting of the "General Railroad Association," held in the Astor House, this city, on the evening of the 10th inst., the subject of using coal in locomotives was partially discussed, and a resolution adopted appointing a committee, to report at the next meeting respecting the introduction of coal and coke, and the construction of engines capable of using such fuel. This exhibits a proper spirit on the part of the Association, and as D. C. McCallum, Esq., Superintendent of the New York and Erie, is chairman of this Committee, we have confidence that the business will not be suffered to sleep, as is too often the case with members of associations, that provide no means for paying the expenses of those who perform extra duties.

Securing Corks in Bottles.



The annexed engravings represent an improvement for securing corks in bottles, for which a patent was granted to T. A. Ashburner, of the city of Philadelphia, Pa., on the 13th of last month.

Figure 1 is a view of a bottle corked on the patent plan; figure 2 is a view of one of the buttons provided with a strip of tin to prevent it from flying with the cork when the bottle is opened; figure 3 is a similar button without the tin strip. Similar letters refer to like parts.

The nature of this invention consists in the peculiar device hereafter to be described, to be applied over the top of a cork in a bottle to prevent it from flying out under inward pressure, the same consisting of a button provided with two stirrup straps which are hinged to said button, so that they catch and hold under the projection on the neck of the bottle to hold in the cork, and may be swung out to release the cork, to let it escape, as may be desired.

a is a round button of about the size of the cork in the bottle, and made, for convenience, of wood, though it may be made of metal if found essential; *b b* are two stirrups made of wire bent up somewhat in the form of a buckle frame, and the two ends of wire thus bent up are sprung apart and inserted, one on each side or edge of the button near its center, in suitable holes therein, so that the spring of the stirrup itself holds it to the button, but may swing thereon. It will be perceived that a button thus provided with the stirrups, as in figure 1, has no tendency to leave the bottle, whilst if desired to open the bottle it is readily removed by slipping one of the stirrups out from under the projection. Any inward pressure against the cork forces it against the button, but as the stirrups pass from a central position in the button to the sides of the neck of the bottle, the tendency is to draw the stirrups closer up to the projection, or in other words to hold the harder. *c* is a strip of tin or other metal, hinged by a dead eye to one of the stirrups. This being for the double purpose of making the button a fixture on the bottle, viz., to prevent it from being lost or wasted, and so that the cork may be allowed to fly whilst the button remains attached to the bottle. It is only necessary to slip one of the stirrups from the projection on the bottle to remove it from the cork, and either of the plans as shown in figures 2 and 3 may be adopted. Many devices have been essayed for securing corks in bottles, but al of them involve expense, intricacy, or difficulties in placing or removing them from the bottle.

More information may be obtained by letter addressed to Mr. Ashburner.

Steam Carriages for Common Roads.

J. K. Fisher proposes, through the Westchester *Journal*, to build a steam carriage to run between certain villages in Westchester County and this city, on the common roads. He offers to pledge a gallery of paintings for the success of the undertaking, and he wishes the residents of those villages to form a joint stock company for the purpose of providing funds to construct as many of those carriages as may be found necessary to try the scheme. We really hope the people of the Westchester County villages will form such a company, and if they can be secured (as they should be) against loss, by the proposer, they should embrace his proposition. We have said—and are positive—that steam carriages cannot *pay* on our common roads; also that the accounts which have been printed of the performances of steam carriages in England were more highly colored than were those of the hot-air engines among ourselves, but if those who think they know better than we do about such things are willing to guarantee their success and provide some means to secure the stockholders in case of failure, who can find fault with the proposition? It is a fair one, and we, above all other persons, hope it may be put in practice, in order to test the question by the only method of convincing without controversy.

Shawk's Steam Fire Engine.

The Cincinnati *Commercial* of the 31st ult., contains the report of a committee of citizens to witness the performances of a new steam fire engine, named "Young America," and built in the machine shop of Abel Shawk, and according to his patent. In this report it is stated, that in twelve minutes exactly, from applying the match, the engine commenced its work, and the pumping of water began. The first experiment was made by using a nozzle one and one eighth inches in diameter, playing horizontally, the water being thrown 210 feet. The next experiment was with a nozzle one and a quarter inches in diameter, in the same direction. Upon actual measurement, it was found that the water had been fairly thrown a distance of *two hundred and twenty nine feet and four inches*. It also forced a stream of water through the 1 1-4 inch nozzle ten feet over the tower of the Mechanics Institute, 150 feet high, and had the wind not been so strong, it would have thrown the stream higher still. The Committee, after a number of experiments, unhesitatingly declared, they were perfectly satisfied, and considered the engine a triumph of which Cincinnati might be proud. We have been informed that this engine is intended for this city.

What is a Tun Weight of Coal?

The Philadelphia *Ledger* of the 10th inst., informs us that the U. S. District Court in that city, decided on the day previous, that the legal weight of a tun of coal is 2,240 lbs., and that coal dealers have no more right to give less weight than grocers to give less than 16 ounces for a pound.

The Supreme Court of Pennsylvania decided, a short time since, that according to the laws of that State, 2000 lbs. were a legal tun weight, and no more could be exacted by a purchaser. We believe that only 2000 lbs. of coal have been given for a tun weight, in this city, for some years past, thus making the customs of coal dealers here conform with the laws and customs of Pennsylvania. These State customs and laws, being at variance with the Federal laws, must be abandoned, as the Constitution of the United States gives to Congress the power to fix the standard of weights and measures. Let each coal purchaser hereafter see to it, that he gets 2240 lbs. for a tun, as his just due according to law.

A breech-loading cannon was recently tried with considerable success at the Charlestown (Mass.) Navy Yard.

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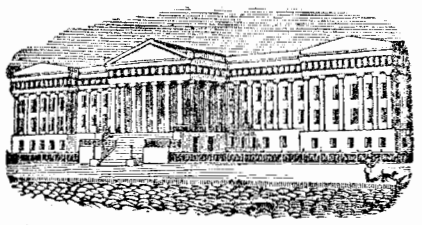

[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office.

FOR THE WEEK ENDING APRIL 11, 1855.

LATHE—Warren Aldrich, of Lowell, Mass.: I do not claim a combination of a tool rest or carriage, a rotary carriage, and a sliding carriage together, and with a mechanism of such character or construction as will impart to such tool post carriage an automatic traverse motion in whatever position its supporting or turning carriage may be disposed and fixed on the carriage by which it is sustained.

Nor do I claim the peculiar mechanism connected with the three carriages and described in the specification of my letters patent dated March 15th 1853, such combination being composed of what are therein exhibited as the splined shaft, U, the movable bevel gear, V, the vertical shaft, and its bevel gears, W Y Y, the horizontal shaft, X, gears, c g, and screw, I, and its female screw affixed to the tool rest carriage, H.

Having invented a simpler combination of mechanical parts for such purpose, and which, although an equivalent to an element or device, in the combination wherein it is employed, is by no means analogous to such device or element, and is much superior in many respects, I claim such combination when used in connection with the three carriages, as described, the same consisting of a long screw, b, a vertical shaft, D, two worm gears, H2 I2, and a screw, n, arranged, applied, and made to operate together, substantially as specified.

DRILLS FOR ARTESIAN WELLS—John Andrews, of Winchester, Mass.: I claim the use of a stiff chain for the purpose of operating a rock drill, or other artesian borer, in the manner set forth.

Second, the device for rotating the drill, consisting essentially of the cog wheel, F, and pinion, I, with the parts which set them in motion, constructed and operating in the manner substantially as set forth.

SAW TEETH—Nelson Barlow, of Newark, N. J.: I claim the described improvements consisting of the recessed space, D, and combined cutters, upon the sides of saw teeth, and also the rounded form given to the outer points of the teeth, when arranged, formed, and operating substantially as described.

STEAM BOILERS—Horace Boardman, of Plattsburgh, N. H.: I claim, first, the graduating of the openings in the flues, or tubes, in the manner and for the purpose set forth.

I also claim, in connection with the flues or tubes, the semi division flue plates, H, in the chamber, G, for regulating and equalizing the egress of the heated products through said tubes, as set forth.

I also claim the inclination of the tubes and tube sheets, for the double purpose of preserving a space between the tube for the sediment to collect in, and from which it can be readily removed, and for preserving a square surface between the tops of the tubes and said sheets, so that they can be fairly riveted, as set forth.

MACHINE FOR RAISING AND TRANSPORTING STONE—S. E. Bolles, of Rochester, Mass.: I claim the construction of an axletree for stone digger, in combination with the bed frame and derrick, substantially and for the purposes asset forth.

ROTARY HARROWS—Lyman Brainard and Levi Newton, of Attica, N. Y.: We are aware that wheel shaped harrow frames have been used both without rotation and with a compulsory rotation in one direction.

But we claim the employment of the wheel-shaped harrow, when fastened upon a central point, so as to turn in either direction, for the purpose and in the manner set forth.

MACHINERY FOR WINDING UP LINES, TWIST, OR CORD—Byron Boardman & G. C. Sweet, of Norwich, Conn: We claim, first, the sweep composed, as described, of an arm, C, attached to a hollow shaft, D, and carrying a hollow tube, b, which is caused by the revolution of the shaft to lay round the fixed hooks, B B', a line, cord, twist, or other fabric of similar character which is conducted through the shaft, and the said tube, substantially as set forth.

Second, so arranging, applying, and operating the sweep and the hooks around which it lays the line or other fabric, that the hooks shall remain stationary in a suitable position to receive the line or fabric while the sweep revolves around them, and that the hooks after the operation of the sweep terminates shall rotate upon axes in line with each other to perform the woolding, as fully described.

Third, giving the tube, b, of the sweep a motion endwise simultaneously with its revolution by any means substantially as described, for the purpose of laying the line or fabric evenly on the hooks, and preventing its being laid in heaps.

Fourth, the manner of disengaging the pulley, G, or its equivalent, which drives the sweep shaft in order to stop the sweep at the proper time and in the proper position, by means of the sliding piece, i, the lever, J, and the adjustable pin, m, in the ratchet wheel, K, or its equivalent, deriving motion from the sweep shaft, all operating substantially as described.

Fifth, the rod, U, arranged and operating substantially as described, for either or both of the purposes set forth, viz: first, to carry a clasp V V, which regulates the woolding and second, to carry fins, pins, or other projections 35, and y, to operate a catch, w, or its equivalent, to cause the engagement and disengagement of the gearing, which gives revolution to the hooks to perform the woolding.

Sixth, the application to the clasp of a catch lever, 15, operating substantially as described, to hold the jaws open during the laying operation, and to be caused to liberate them by the falling of the clasp to allow them to close ready for the woolding operation.

[This novel and valuable machine is described as well as it can be, without engravings, on another page.]

ARRANGEMENT OF DIES AND STOCKS FOR ORNAMENTING METAL TUBES—S. M. Cate and Edmund Jordon, of Waterbury, Conn: We are aware that a series of stationary dies have been long used to ornament tubes, and that revolving dies have been used for ornamenting articles while in a lathe, and that revolving dies have also been used where the article has been drawn through by a process like that of wire through a draw plate, or for welding iron tubes, &c., and that adjustable holders are not new.

We therefore do not claim any of the parts as such, as our invention; what we claim is the combination of the adjustable die stocks, E F G H, with the revolving dies, e e e e, in a self-feeding machine, for ornamenting tubes, &c., when the whole is constructed, arranged, combined, and made to operate substantially as described.

BOOT FORMS—John Chilcott and Robert Snell, of Brooklyn, N. Y.: We claim, first, the inner clamp, E, fitted to a recess in the front piece, A, substantially as described, so that its exterior presents the desired surface for a part of the front piece, whereby after having held the first edge of the front seam of the leg seam to the front piece, A, till the whole piece of material is lapped to the proper form it may be drawn out lengthwise and re-inserted in the front piece, inside the edge it previously held, and thus throw out the said edge and part of the material immediately behind it, into contact with that part of the material which overlaps and is to be united to it to make the seam.

Second, the exterior clamps, I I, attached to screws, K K, working in an upright, L, which is attached to the front piece, A, substantially as described in a suitable position for the clamps to hold the two parts of the front seam together, and to allow the said front piece to be taken from the upper.

[A description of this machine may be found on page 116, Vol 9, Sci Am.]

MACHINES FOR RECORDING VOTES IN LEGISLATIVE BODIES—T. C. Connolly, of Washington, D. C.: I would state that the recording of votes by a system of knobs, bell pulls, cranks, and wires, has been used, and is well known. These I do not claim, nor do I claim the working of slides on which the names of the members are printed or engraved.

But I claim the moving of the slides containing the members' names into columns of yeas and nays, this arrangement being one that is well calculated for the convenient display of the vote to all the members of the body voting, substantially in the manner described.

I also claim the arranging of a series of types, stereotype or plates in a galley, by a system of levers, cords, wires, &c. extending from each desk or seat to said galley, so that any number of impressions of the exact record of the vote taken may be instantly printed or struck off.

I also claim the so-arranging in a galley, of a series of types, stereotype or plates, as that they may be readily moved therein to the left or right and instantly locked into a form from which printed impressions may be taken by any of the well known means.

SEED PLANTERS—J. W. Corey, of Crawfordsville, Ind.: Disclaiming all devices separately considered, except the adjustable seed or slide box, D, which I claim as constructed, arranged, and described.

I claim the arrangement of an adjustable slide, K, adjustable seed gauge, n, coiled spring, E, and connecting rod, F, together with grooved roller, I, slotted arms, J J, front share, G, adjustable clod mover, p, and covering shares, H H, as set forth and operated.

LOCOMOTIVE BOILERS—J. J. Dutcher, of New Haven, Ct. I claim, first, the described arrangement of water spaces within and contiguous to the furnace, and leading therefrom to the body of the boiler, consisting of the horizontal pipe, D, inverted cone, E, upright tube, G, and horizontal tube, I, all connected substantially as described.

Second, in combination with a hinged fire grate or grates, to the boiler furnace, I claim providing hinged traps in the ash pan to be lowered and raised or opened and closed simultaneously with the fire grate or grates, by means of an upright rod, K, passing through the boiler and suspended from a lever, L, within the control of the engineer or fireman, while at his usual post, the said rod, K, operating upon the said grates and traps, by means of arms, d d d' d', or their equivalents, all substantially as described.

Third, retarding the escape down the inclined ash pan of the ashes, coal, &c., falling thereon through the grate, by means of curb plates, g h, arranged as described, or in any equivalent manner, to make the said ashes, coal, &c., take a circuitous direction.

[A brief description of this invention may be found on another page.]

CARD EXHIBITOR—Wright Duryea, of New York City: I claim the described improvement in card exhibitors and distributors, consisting in the application of the roller, D, printed strip, j, and guide, d, and self closing spring holder, G, substantially as and for the purposes described.

[See notice of this contrivance for exhibiting and distributing business cards in hotels and other public places, in another column.]

PORTABLE DOOR FASTENERS—B. R. Eames, of South Newry, Me.: I expressly disclaim hooked bars with separate and vertically moving stops and braces, as such form no part of my invention.

But I claim the described combination of bifurcated hooked bar, B, spring, compensator, C, and horizontally moving brace, G, the compensator, and brace, movable about the vertical connection of said bar, whereby the self movement of the brace is prevented, while it performs the double function of gauge and brace.

FRAMING FOR BUILDING CONCRETE WALLS.—Salathiel Ellis, of New York City: I claim the construction of the clamps, substantially as described, so that they can be moved or turned up, as necessity requires, and the combination of these clamps with the rods and boards to form a self-supporting frame for the uses and purposes described.

TOOL FOR BORING HUBS—H. C. Garvin and J. H. King, of Hagerstown, Md.: We claim the apparatus for boring wagon and carriage hubs, for reception of boxes (narrow and through boxes) as described, using for that purpose the aforesaid apparatus, or any other substantially the same.

FURNACES FOR BURNING WET FUEL—Moses Thompson, of Henrico Co., Va.: I do not claim the described arrangement of a series of fire chambers to communicate with one common flue, irrespective of the purpose for which and the manner in which I employ the said arrangement.

But I claim the combustion for the purposes of a high degree of heat of bagasse, refuse tan, saw dust, and other refuse substances, or very wet and green wood by the employment of a series of fire chambers arranged in any manner substantially as described, to communicate with one flue, when any number of the said chambers are nearly closed to the flue, and to the admission of air, when first charged, as described, while the remaining chamber or chambers is in free communication with the flue, and has a free supply of air admitted, and each chamber in its turn is nearly closed, and then opened, and has air admitted, whereby the heat required is furnished by the combustion of the fuel in one or more chambers, while the fuel in the other chamber or chambers is being heated and decomposed to a desirable degree, as set forth, no artificial blast being used.

[On page 84, present Vol., a short description of this invention may be found, which is believed to be a valuable one.]

MODE OF GUIDING RECIPROCATING SAWS—C. B. Hutchinson, of Auburn, N. Y.: I claim the use of a thin guide plate for holding and guiding the saw placed immediately behind and in the same plane with it, and following it through the log, whether the same be used by itself, or in connection with any other means of holding and guiding the saw.

RAILROAD CAR COUPLING—J. H. Jones of Scio, N. Y.: I am aware that a patent was granted to Joseph D. Alvord, on the 18th Sept., 1849, for a car shackle in which two horizontally placed hooks, one at each end of the car attached to the buntor, so formed and so attached that on bringing the cars together, the hooks will fall into sockets into the respective opposite cars.

This I do not claim, as my invention is an improvement upon Alvord's. Nor do I claim a car coupling wherein a link or its substitute is used at all.

Neither do I claim a car coupling wherein a male and female catch are used because they require to be changed at times, as two male or female catches will not form the coupling.

But I claim a car coupling without a link, which may be a permanent fixture on the car, and each half so formed as that the jaws or hooks will always couple or catch the one with the other, when brought together, regardless of the particular ends of the cars, which may be brought together, substantially as described.

FIRE ARMS—Ferdinand Klein, of Newark, N. J.: I claim an improvement in the manner of opening and closing the valve or cover of the chamber which receives the charge in the manner and for the purpose as set forth.

I also claim the use of a cap for the purpose of protecting the chamber and the spring that moves it, as set forth.

STEAM GENERATORS—A. B. Latta, of Cincinnati, Ohio: I claim, first, combining a steam generator or boiler, consisting of a coil of tube with a furnace, in such a manner that the flame or products of combustion shall come in immediate contact with said coil, when this coil is combined with a feed apparatus and gauges, which will enable the engineer to inspect constantly the supply of water, see that it is not interrupted, test its sufficiency, and regulate it at pleasure, according to the varying demands of the boiler or close the dampers if the feed should be interrupted, substantially as described.

I also claim, while confining the admission of water to the receiving end of a coiled tube boiler, limiting the quantity therein, and the supply thereof to the quantity demanded for immediate conversion into steam, for the purpose of avoiding the weight of a large quantity of water, producing steam promptly, saving fuel and preventing the water from being thrown out of the tube by the steam formed in the lower part thereof, substantially as described.

I also claim causing the discharging end of a coiled tube generator to communicate with, and dischargeitself into, the water jacket while all other communication of said coil with said jacket is avoided, as described.

STRAW CUTTERS—Walter Lackey, of Worcester, Mass.: I do not claim the self feeding flanges working against a stationary knife, as described by A. S. Macomber, in his patent granted Nov. 5, 1850. Nor do I claim the particular form or arrangements of the parts.

But I claim the use of the heads, B B, when made to correspond with the flange or flanges to facilitate the setting of them, and prevent their striking over the stationary knife or bed.

I claim the flanges in combination with the heads working against the stationary knife, as set forth.

I claim the combination of the flanges, heads, stationary knife and feed rolls, as described, or any other substantially the same.

SPIRAL WHEEL FOR REPLACING RAILROAD CARS UPON THE TRACK—R. F. R. Lewis, of Annapolis, Md.: I claim the application of one or more cast or wrought-iron hollow cylinders, wormed flanged, or screw threaded on their exterior surfaces, in the manner of a plain screw, to rail trucks or carriages in place of or in combination with the common or ordinary flange wheel, as described, and thereby prevent the same from running off, or being thrown from the track, whilst in forward motion.

GRADUATING THE TENSION OF CAR BRAKES—William Loughridge, of Weverton, Md.: I am aware that various arrangements of self-acting brakes have been proposed, in which the power obtained from the locomotive axle by means of an engaging and disengaging mechanism has been applied, throughout a train, by the use of a chain, or its equivalent. Such a brake, therefore, I do not claim.

But I claim the combination and arrangement of the sliding plate, M, having a series of holes graduated for limiting its play by an adjustable pin, the supplementary chain, C', wound upon the chain barrel, D, which receives the chain for actuating the brakes, the lever, E, for bringing the said barrel into and out of action—the spring catch, K for holding the said lever, E, in engagement, until tripped by the pin of the aforesaid sliding plate, M, when the lever, E, is released, and the power is maintained without any further increase, the whole constituting an automatic disengaging apparatus capable of being graduated so as to apply and retain any degree of frictional pressure that may be previously desired by the simple adjustment of the movable pin in the sliding plate, substantially as described.

[This invention has been secured by patents in foreign countries, and has been highly commended by railroad engineers and scientific men. See notice on another page.]

HYDROPNEUMATIC ENGINE FOR EXTINGUISHING FIRE.—Wm. Loughridge, of Weverton, Md.: I claim, first, the employment, for the purpose of supplying water for fires and ordinary uses at the same time, of the supply and force pipes, A B, connected by connecting pipes C, fitted with valves, D, said supply pipe being connected with the suction, a, and said force pipe with the discharge, b, of a force pump, and the whole operating substantially as set forth.

Second, though I do not claim the employment of a weight as a motor, irrespective of its particular use in this apparatus, I claim the application of the weight, H, or its equivalent to the driving shaft, F, of the pump in connection with a brake, K, as described, for the purpose of setting the said shaft in motion by the mere act of liberating it from the restraint of the brake, and thereby calling the attention of the engineer, and continuing to drive it until the engineer can get the engine ready, and connect it, thereby obviating the necessity of having the engine always connected and in readiness, substantially as set forth.

Third, I claim the combination of the signal pipe, S, the tank, N, and float, M, the signal pipe being connected either with the supply or force pipe, and the float with the brake lever, substantially as set forth, for the purpose of enabling a person at any distance from the forcing pump to set free the brake, and start the pump instantaneously, and to give notice to the engineer when to connect the engine, or get it in readiness.

[This invention is by the same party to whom the Railroad Car Brake above mentioned is granted. See notice of this also on another page.]

MACHINERY FOR BORING WELLS—John F. Manahan, of Lowell, Mass.: I do not claim an endless leathern band, carrying leathern buckets around two stationary revolving pulleys, as used in flouring mills, as such are well known.

I claim the boring cylinder, B, having a cutter at its lower end, and an adjustable cutter in its periphery for enlarging the hole so that the auger cannot bind when in use, and so that the tube designed to line the well can follow the auger or cylinder, B, downwards and allow this auger to be drawn up through the lining tube, by the shutting or moving of the enlarging cutter, all being arranged and operated in the manner and for the purposes set forth.

I also claim the metallic chain of buckets, E, in combination with the earth cutter, B, operating or moving in such manner within it, as to receive the earth as fast as it is cut from the ground and elevate it to the desired hight, essentially in the manner and for the purposes' set forth.

MACHINE FOR PARING APPLES—S. N. Maxam, of Shelburne Falls, Mass.: I do not confine myself to the precise form and exact arrangement of the several parts described, as I may choose to vary the same while I attain the same result by means substantially the same.

Nor do I claim any particular form or construction of the knife to be used upon the machine set forth, but may use any of the known forms of straight, curved, circular, or cylindrical knives, which have long been in common use.

I claim the inclined plane, scroll, C, combined with the movers, D E F, or their mechanical equivalents combined, arranged and operating substantially in the manner and for the purposes set forth.

CULTIVATORS—A. H. Morrel, of Marlen, Texas: I am aware that rotary cutters and laterally adjustable shares have been separately used in cultivators, and therefore I claim, first, the combination of the adjustable thinning point or points, m, at the forward end of the cultivator with the adjustable cultivating point or points, r, at the rear end of the cultivator, substantially as set forth.

I also claim combining the rotating cutter, d, with the laterally adjustable thinning point or points, m, and the cultivating point or points, r, substantially in the manner and for the purpose set forth.

MORTISING BLINDS—Benj. T. Norris, of Lynn, Mass.: I claim the manner of constructing and operating the parts carrying the same, viz: the hollow pulley and spindle within the same, arranged as described, together with the levers attached, operated by the means described or other suitable device.

I also claim the manner of operating and guiding the stock by the combination of the lever with the racks and the movable detents, as described.

But I do not claim the index constructed of bars, as described, that having been in use before.

GAS REGULATOR—Sam. P. Parham, of Trenton, N. J.: I claim a conical valve or its equivalent, operated by a jet of air, gas, or water, applied immediately under it or against a cupor valve connected to it, in combination with an elliptical seat or its equivalent, so constructed as to let the requisite supply of air, gas, or water escape when the valve is forced into the seat, the whole being so constructed and arranged as to regulate and equalize the flow of air, gas, or water, and furnish a uniform or nearly uniform supply under different degrees of pressure, substantially as described.

[A description of this Regulator will be published next week.]

BEDSTEAD FASTENINGS—Joseph Rodefer, of Cincinnati, Ohio: I claim, as formed and applied, the circular split ring let into a segmental annular mortise in the rail, from which its upper end projects in the form of a hook, and its lower end in form substantially as described, permitting the passage of the catch pin in the act of insertion, affording an additional lateral bearing and a means of adjustment, as described.

STRAW CUTTERS—Ira Rose, of Akron, Ohio: I do not claim the feed rollers; neither do I claim the knife, for these are well known, and in common use.

But I claim the combination of the cam, H, yoke, I, said lever, J, with the rock shaft, K, and pawls, M M, the above parts being constructed, arranged, and operating in the manner and for the purpose, as shown, and described.

[See a description of this invention on another page.]

VENETIAN WINDOW BLINDS—Chas. Rose, of Allentown, Pa.: I claim, in combination with the lower head and blind, the additional or upper head and the hooks and cords for readily connecting or disconnecting the two heads for the purpose of placing or removing the blind from the window, substantially as described and represented.

STRAW CUTTERS—David Russell, of Drewersburgh, Ind.: I claim, first, knives, A A, in combination with the double crank, B, and lever, C, thereby giving to the knives an oscillatory reciprocating motion, by which means I obtain two shear cuts of the knives at each revolution of the double crank, B, as described and claimed.

Second, I claim the cam lever, K, and crank, B, in combination with lever, J, and pawls, b b, ratchet, H, and feed rollers, G G, for the purpose of feeding the straw or other material to the knives, as set forth.

STRAW CUTTERS—S. T. Sharp, of Danville, Mo.: I claim the arranging a circular knife and a circular guard upon a common pivot, so that they will revolve one towards the other until they meet, each traveling the same distance, or the arranging two knives (circular) upon a common pivot, so that they will revolve towards each other until they meet.

PLATFORM BALANCES—D. M. Smyth, of New York City: I am aware that in platform balances the two rocker s that sustain the platform have been connected together, so that the articles to be weighed may be placed on any part of the platform and exert an equal force on the balance, but this has heretofore been confined either with the steelyard or common balance, and therefore I do not wish to be understood as claiming to be the first inventor of such an arrangement irrespective of the combination specified.

And I am also aware that scales have been made to operate on the principle of the bent lever to weigh articles of varying weight, with one weight the arm carrying the weight gradually increasing in leverage as the arm sustaining the article to be weighed gradually decreases, but this mode of operation has never been combined with any height of balance, and therefore I do not claim it as a separate device.

I claim the arrangement of the platform with hangers suspended at four corners to the two rockers which are linked together, substantially as described, when this is combined with the weighted arms on the rockers, operating on the principle of the bent lever, substantially as specified.

STRAW CUTTERS—T. C. Simonton and Loren J. Wicks, of Paterson, N. J.: We do not claim the adjustable throat piece, I, for that has been previously used. Neither do we claim, separately, the cylinder, C, with knives, D D, thereon, for they also have been used.

We claim the combination of the cylinder, C, with the knives, D D, attached to its periphery and vibrating bed, F, constructed, arranged, and operating in the manner and for the purposes shown and described.

[This is an excellent invention, and the patentees are taking patents in foreign countries. A description of it will be published in a few weeks—as soon as the Continental patents issue.]

PLATE HOLDER FOR CAMERAS—Albert S. Southworth, of Boston, Mass.: I claim the described plate holder, in combination with the frame in which it moves constructed and operating in the manner and for the purpose substantially as set forth.

ADJUSTABLE FRICTION ROLLERS—John and Thos. Sweeney, of Birmingham, Pa.: We claim the use of sliding boxes to carry the journals of the friction rollers, in combination with the springs, for the purpose of pressing them all continually against the surface of the journal or gudgeon of the shaft, which works in the rollers, so as to make them all revolve as the journal revolves not only on their own axes but around the journal in the manner described.

FEEDING PAPER TO PRINTING PRESSES—J. B. Hall, of New York City: I claim, first, lifting or picking up the sheets of paper from the feed boards or piles of paper to be printed, by means of nippers, pincers, or tweezers, Z, constructed as shown or in an equivalent way, and operated by any suitable mechanism so that the jaws of said nippers may when slightly open press upon the sheets of paper in such a manner that when closing they may grasp or nip the upper surface of the top sheet, or the ridge of the sheet formed between them by their pressure as described, and for the purpose, as set forth.

Second, I claim separating or detaching the uppermost sheet of paper on the feed board or pile of paper to be printed, so as to prevent the removal therefrom of more than a single sheet at a time by means of the hooks, w2 w2, or by pins or points, so constructed and operated as to answer the same purpose, and rollers, u2 u2 attached to a shaft, K', or other suitable fixtures, and in connection with said hooks and rollers by means of a reciprocating motion of the platform, P, feed board, and pile of paper, the said hooks, pins or points acting conjointly with the said movable platform, substantially as shown and described.

Third, I claim conveying the raised sheets of paper from the feed boards to the form to be printed, and also from the form when printed, to the proper boxes or receptacles, by means of the fingers, g, attached to the tube, and shaft, F, which is secured to endless bands or cords, D D, which are provided with collars or teeth, to prevent them slipping, in passing around suitable pulleys, C, or by means of other fixtures, which would be equivalent to the above named parts, when they are used in connection with a vibrating or movable frame, K, or its equivalent, for properly adjusting the printed sheets in the boxes or receptacles, I, when released from the fingers, as set forth.

[A limited description of this machine will be published next week.]

CABIN CHAIRS—William Thomas, of Hingham, Mass.: I claim placing the seat, F, within a frame, E, which is attached by pivots, e e, to the body of the chair, the seat having friction rollers or wheels, f f, attached to its under side, which work upon the lower curved portion of the frame, E, as shown, whereby the frame and body of the chair are allowed to turn or be inclined in accordance with the motions of the vessel and the seat at the same time, always remaining in a horizontal position, as described.

[This invention is noticed on another page.]

WOODEN SPLICE PIECE FOR RAILWAYS—Isaac R. Trimble of Baltimore, Md. Ante dated Oct. 10, 1854: I claim the combination of a wooden splice piece strong enough to resist the latent and vertical disturbances to which the adjacent ends of rails are liable, in combination with any form of rail competent to its purpose, without other support throughout than its own stiffness, the said splice piece and rail in the combination now claimed being fastened together, and fastened down in the manner described.

ALLOWING CIRCULAR SAW SPINDLES TO YIELD—Hiram Wells, of Florence, Mass.: I claim arranging within the box or bearing, and combining with it and the saw spindle, substantially as specified, the guide, its spring, and the compound frusto-conical groove provided with shoulders as described, the whole constituting a device of great simplicity of construction, and of much advantage in not only allowing a circular saw, while in operation, to move laterally, but to limit such movement of it, and subsequently to restore it to its normal or original position.

BORING THE EARTH—C. N. White, of Concord, N. C.: I claim the combination of the frame, C, and weight, B, with the movable inclined rods, c, attached, the above parts being constructed, arranged, and operating in the manner and for the purpose shown and described.

[A notice of this apparatus will appear in our columns next week.]

PAINT MILL—David F. Paynter, of Philadelphia, Pa., (assignor to Israel M. Bissell, of same place): I am aware that stone mills with conical grinding surfaces are commonly used. I am also aware that many of the features described above, have been used in connection with other mills. I therefore do not wish to claim such parts and vidually.

But the arrangement and combination of the whole of the parts contained in the specification, that is to say, I claim the double cone, D, constructed as shown at s t and v, in combination with the barrel, A, substantially as described, for the purpose specified.

LATHES FOR TURNING LOCOMOTIVE DRIVERS—J. M. Stone, of Matchester, N. H., (assignor to the Manchester Locomotive Works): I claim the drills, D D, in combination with the turning lathe, the one being mortised through the face plate, the other through the foot stock, in the manner and for the purpose substantially as set forth.

RE ISSUES.

GRAIN HARVESTERS—Aaron Palmer, of Brockport, New York, and Stephen G. Williams, of Janesville, Wisconsin. Original patent dated July 1st, 1851: We claim discharging the cut stalks and heads of grains from the main platform, D, on which they first fall by means of the combination of the rake, C, with the over hung lever, moved by gearing located within the inner edge or circle of said platform, as set forth.

[An engraving of this harvesting machine was beautifully illustrated in our columns last week.]

WINNOWING MACHINES—Benj. D. Sanders, of Holliday's Cove, Va. Original patent dated June 19, 1849: I claim, first, the employment or use of a vertical blast spout, F, gradually enlarged from its lower to its upper end, so that the strength of the blast is decreased in the upper portion of the spout, owing to the increased space, or area of the spout, for the purpose of preventing any sound or perfect grain being carried with the light foreign matter, over the upper edge of the spout. The blast being formed or generated in said spout in any proper manner.

Second, I claim the blast spout, F, either gradually enlarged from below, upwards, or of the same dimensions throughout, and communicating with a mosaic current through the screen, a, in combination with the hopper, E', and the fan placed at the end of the opposite vertical spout, D, to separate the chaff and other impurities from the grain in the manner substantially as described.

Third, I claim the employment or use of a vertical blast spout, either gradually enlarged from below upwards, or of the same dimensions throughout, when said blast spout is so arranged that the grain is cleaned or separated from impurities within said vertical spout.

[An engraving of this machine may be found on page 324, Vol. 4, SCIENTIFIC AMERICAN. With such claims as Mr. S. has now secured to him, he has one of the most important patents in the agricultural department with which we are acquainted.]

ADDITIONAL IMPROVEMENTS.

PEN HOLDERS—Ebenezer W. Hanson, of Philadelphia, Pa. Original patent dated Dec. 6 1853: Having thus fully and accurately described the construction and operation of my invention, I point out peculiar facts resulting there from, showing its utility and advantages. I proceed to state, that what I claim herein as my invention and desire to secure by letters patent is constructing the thumb and finger rests, a b, or either of them so that they shall extend

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along the sides of the cylinder, a greater or less distance, substantially and for the purpose as described, whether the outer corners of the same be rounded off or left full, or whether the said cylinder be adapted for fitting over the pen barrel or tube; or for attaching to the end of the stick so as to dispense with the barrel or tube as described, or whether the said rests be soldered to the cylinder, A, or cut out with the same.

DESIGN.

SPOONS—John Gorham, of Providence, R. I.

NOTE TO THE READER—Another small army of our friends and patrons will be gratified this week by the reception of letters patent for their new inventions. One third the entire number of the new issues above recorded were obtained through our exertions, while an equally large list was granted to our clients last week. Some of these patents are of great importance and value.

Our success in carrying patent cases through is thought by some persons to be remarkable, and with many it becomes proverbial. As for ourselves, we feel sure that those who desire to secure patents, either in this country or in Europe, will promote their own interests by having their business pass through the SCIENTIFIC AMERICAN Patent Agency. Our charges are always moderate, and our facilities the very best. Every patent case is prepared with the utmost care under our direct personal supervision. If we meet with unusual success, it is due to unusual labor in behalf of our clients. In all cases we endeavor to serve them honestly and faithfully.

In this connection we would repeat what we have often before said, viz:—That we are always happy to advise with individuals respecting the novelty and patentability of their inventions, *free of charge*. Those who consult with us may expect an honest opinion. If their discovery has, to our knowledge, been before known, we shall tell them so, and advise them not to apply for a patent. If it is new, and in our opinion probably patentable, we shall inform them accordingly. Those who reside at a distance may consult us by letter. Our replies will be either by mail, or through the columns of our paper devoted "To Correspondents."

TO CORRESPONDENTS.

W. H. Naracon, of Sterling, of Martville, of Oswego, and sundry other places, wishes to know why we have not answered three letters from him, one dated March 20th, and one of April 3rd, and the last April 9th. In reply we would state that all of his letters have been answered, and addressed to him at the several post offices from which his letters purported to be mailed, viz:—First, Oswego, second Sterling, and third Martville, all in the State of New York. Now if Mr. N. resides at neither of these places, will he please to write and specify at what post office a letter will reach him, and we will address him once more, for our patience is not exhausted yet. It is perplexing, however, to receive letter after letter from the same individual, mailed from a different post office each time, without any hint from the writer as to where a reply should be addressed—it reminds us of an effort we once made to catch a flea. This hint to Mr. N. may apply to others who are waiting for answers to letters which have been mailed under similar circumstances, for it is very often that we have letters dated at one place at the head of the sheet, and bearing a post-mark on the envelope from a different place entirely. Correspondents when they write their letters at one place and mail them at another, will oblige us, and at the same time put themselves in a position to receive a prompt reply, if they will particularly state at what office they desire an answer addressed.

P. W., & O. M., of N. J.—In our opinion your governor cut-offs are both patentable.

S. W., of N. Y.—We are not acquainted with any single work that gives an account of the construction of sounding boards.

H. R. G., of Wis.—Mr. W. H. Archer, No. 9, Lewis Place, Brooklyn, N. Y., says he can furnish you with the work on cog wheels which you desire.

R. B., of N. Y.—Arranging car wheels so that one or both will run loose upon the axle when turning a curve, is not new. Your invention is not patentable.

J. T., of Va.—We cannot determine from your description whether the improvement is patented or not. Why do you not ask the gentleman to show proof of the patent if one exists, by giving names and dates.

W. C. G., of Phila.—It appears to us that you could have made a better answer to Mr. E. than you have done; one of your sentences surrenders the question to him.

F. S., of Troy—We have endeavored to find out the ear tubes which you wrote about, but have not been able. We never heard of them before; but will pay more attention to the subject.

J. S. D., of Tenn.—We have made inquiries respecting the use of the cotton stalk and bear grass for the purposes mentioned by you, but have not been able to learn that they have ever been so applied. The question will be the expense of preparing them. Many substances now unused can be applied to useful purposes, but the processes of manufacturing them are too expensive.

O. A., of Ia.—Perseverance in practice is the key to success in the art of drawing, as it is in about every other branch of human acquirement. If you desire to learn mechanical drawing, the "Practical Mechanic's Drawing Book," published by Stringer & Townsend, 222 Broadway, N. Y., will assist you. Price $5. The same publishers will, on application, give you names of the best works on perspective drawing.

J. H. W., of Mass.—If we understand your plan it is simply an arrangement of fan wheels for introducing fresh air into a railroad car, dust and all. No new plan for this purpose is needed, as the ventilators now in use accomplish the same too perfectly: what is wanted is a means of admitting the air but excluding the dust: we cannot advise you to apply for a patent.

S. S., of Pa.—We will notify our agents abroad and see what aids they will require to conduct your business. Perhaps they will require a machine.

F St. Joseph's Iron Co., of Ind.—Mr. L's. petition of withdrawal was not properly filled out for the money to be returned to us, and therefore it must be sent to his address at your place. The withdrawal paper was sent to the Patent Office on the 13th inst., and the money will be due at your place about the 20th.

D. B., of Ind.—Says, "I have a controversy in law respecting some patterns, in which, to my loss, they are claimed as, and called tools. Now I would be glad to have you, through your paper, answer the question, are patterns tools, and should they be called by that name?"

ANS.—The question asked by our correspondent is almost as comprehensive as that other one "Will saltpetre explode?" Sometimes it will, and sometimes it wont. Patterns are certainly not commonly called tools. But Webster defines a tool as "an instrument of manual operation." Under this definition a smart lawyer could make a legal tool out of a pattern; while another limb of the law, equally clever, might perhaps prevent such a transformation.

Vergennes Scale Co., of Vt.—Your power of attorney has come to hand, and will be sent out by the next steamer.—Your Governor evidently does not appreciate the importance of expediating matters pertaining to foreign patents, and we hope you will give him the hint next time we send you papers which require legalizing. No damage done this time by the delay, but under some circumstances there might have been.

E. T., of Ohio—We specified the running of the steam pipes through the apartments to be heated, to save room, for you must lose the use of the apartment which you employ for a special heater. There can be no difference in the power of heating the whole building, if you employ the same amount of heating surface in both cases; that is all.

J. W. J., of O.—We do not know the price of any of the machines to which you have referred; but certainly you can find such a machine on page 129, this Vol. SCI. AM.—Write to the patentee.

E. N. S., of Texas—We are not acquainted with any published work on brick making; work your clay more before molding, and put in a greater quantity of sand into the composition of the bricks; this should remedy the evil of cracking.

J. H., of N. B.—Fill the letters of the rules with black wax dissolved in alcohol, or with printer's ink.

J. S. W., of Ala.—Give the full calculations—results—as well as data to calculate them; this will save us time.

R., of New York—We are not able to give you the information desired respecting gold alloys, excepting to say that silver makes its color pale, and copper makes it red. By combining these two you will get the proper color.

J. C., of Ohio—We cannot find the description of a single patent, for purifying oil in the manner described by you. There are some very old patents for purifying oils; your discovery appears to be a very valuable one.

W. H., of N. Y.—There is no doubt but that such a society as you express the need of aid from, would be beneficial, but inventors, as a general thing, are too jealous of their separate interests to admit of such ends being accomplished as your proposed society would aim at. Your idea is not practicable.

A. G., of Mass.—Ratchet hand wrenches are in pretty common use, and a good many kinds have been patented; still you may have something new; we would suggest that you send us one of your implements, when we will advise you further.

J. F. B., of Mo.—For the purpose which you desire to adapt a Sewing Machine, we should think Singer's would answer your purpose admirably: address I. M. Singer & Co., 323 Broadway.

W. R., of O.—We think it would be impossible for you to get a patent on your stove, and therefore would not advise you to apply.

Money received at the SCIENTIFIC AMERICAN on account of Patent Office business for the week ending Saturday, April 14:—

H. C., of Ill., $40; J. D. H., of Ill., $30; D. F. S., of Ill., $30; W. D., of N. Y., $30; M. B. H., of Miss., $30; J. E. F. L., of Ct., $55; T. W., of Ill., $25; G. R., of Mass., $25; L. T. R., of Mass., $25; S. M., of N. H., $30; J. B. D., of Mass., $25; S. G., of Mo., $10; E. D. W., of Del., $60; P. G. G., of N. Y., $55; T. A., of N. Y., $25; J. H., of Wis., $10; S. S., of Pa., $20; J. S., of Pa., $30; C. & G., of Ct., $30; H. H. T., of Mass., $30; A. G., of Ill., $115; P. J. C., of S. C., $55; J. C. A., of M. D., $5; E. D., of N. Y., $32; S. C., of Va., $25; C. L., of Pa., $25; C. H. W., of C. W., $250; G. W. M., of Mich., $30; T. P., of N. Y. $20; W. A., of Ct., $25; M. D. D., of N. Y., $20; A. W. F., of Pa., $25; J. C. R., of N. Y. $55; T. S. M., of N. Y., $30; J. H., of Wis., $10; W. D. W., of Ind., $30; W. L. B., of ——., $20; L. Y., of N. Y., $5; M. F. C., of N. J., $25; G. A. M., of N. Y., $30; S. K., of La., $70; L. B. B., of Ct., $30; A. H., of N. Y., $20; S. H., of N. Y., $25: C. J., of R. I., $67; W. Mt. S., of N. Y., $10; C. R. R., of N. Y., $25; B. G. W., of N. Y., $55.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, April 14:—

S. I. R., of Ill.; J. S. M., of N. Y.; L C., of Miss.; A. W. S., of Ct.; T. A., of N. Y.; C. L., of Pa.; S. H., of N. Y.; P. G G., of N. Y.; A. W. F., of Pa.; A. G., of Ill.; T. W., of Ill.; G. R., of Mass.: S. C., of Va.; J. B. D., of Mass.; T. & C. C., of R. I.; B. G. W., of N. Y.: C. R. R., of N. Y.; E. F., of Ct.; J. H., of Wis.; E. D., of N. Y.; M F. C., of N. J.; W. D. D., of N. Y.; W. A., of Ct.

Important Items.

PATENT LAWS, AND GUIDE TO INVENTORS—Congress having adjourned without enacting any new laws pertaining to applications for patents, we have issued a new edition of the old laws, which may be had at our counter or sent by mail. This pamphlet contains not only the laws but all information touching the rules and regulations of the Patent Office Price 12½ cents per copy.

BACK NUMBERS AND VOLUMES—We have the following numbers and volumes of the SCIENTIFIC AMERICAN, which we can supply at the annexed prices:—Of Volume 5, forty numbers; price in sheets, $1; bound, $1,75. Of Volume 6, all; price in sheets, $2; bound, $2,75. Of Volume 7, all; price in sheets, $2; bound, $2,75. Of Volume 8, none complete, but about 30 numbers in sheets, which will be sold at 50 cents per set. Of Volume 9, complete in sheets, $2; bound, $2,75. Of Vol. 10, all the back numbers, at the subscription price.

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IMPORTANT TO INVENTORS—MESSRS. MUNN & CO., 128 Fulton street, New York, Publishers and Proprietors of the SCIENTIFIC AMERICAN, having for many years been extensively engaged in procuring Letters Patents for new mechanical and chemical inventions, offer their services upon the most reasonable terms. Patents promptly secured in the United States, Great Britain, France, Belgium, Holland, Austria, Russia, Spain, and in all countries where they are granted. All business entrusted to their charge is strictly confidential. Private consultations respecting the patentability of inventions are held free of charge, with inventors, at their office, from 9 A. M., until 4 P. M. Parties residing at a distance are informed that it is generally unnecessary for them to incur the expense of attending in person, as all the steps necessary to secure a patent can be arranged by letter. A rough sketch and description of the improvement should be first forwarded, which we will examine and give an opinion as to patentability without charge. Models and fees can be sent with safety from any part of the country by express. In this respect New York is more accessible than any other city in our country. Circulars of information will be sent free of postage to any one wishing to learn the preliminary steps towards making an application.

In addition to the advantages which the long experience and great success of our firm in obtaining patent present to inventors, they are informed that all inventions patented through our establishment, are noticed, *at the proper time*, in the SCIENTIFIC AMERICAN. This paper is read by not less than 100,000 persons every week, and enjoys a very wide-spread and substantial influence. Parties intrusting their business in our hands can rely upon prompt and faithful attention.—Most of the patents obtained by Americans in foreign countries are secured through us; while it is well known that a very large proportion of all the patents applied for in the U. S., go through our agency.

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TO DISTILLERS OF OILS, ROSINS, &c, India Rubber Manufactures, Varnish Makers, and others. The advertiser, SAMUEL CHILDS, has received a patent for an improvement in the mode of using heated steam which is very important to all persons engaged in the above businesses; and he is desirous of disposing of the whole or separate rights on moderate terms. For particulars apply to LEMUEL W. SERRELL, Patent Agency, 289 Broadway, N. Y. 31 2*

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31 4* D. SHEPHERD, Counsellor-at-law, No. 7 Wall st.

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KNITTING MACHINES—The subscriber having purchased of John Pepper the right to make and sell his new and improved knitting machines (one of which was on exhibition at the late Fair in Philadelphia) now offers them for sale. These machines are cheaper and are warranted to produce more work and of a better quality than any other machines in use.
WALTER AIKEN.
Franklin, N. H., April 4, 1855. 31 2*

A CLIPPER AMONG THE MONTHLIES.—The NAUTICAL MAGAZINE, devoted exclusively to Maritime interests, embracing shipbuilding, commerce, navigation, and marine engineering, enlarged 96 pages. This work contains draughts of some of the finest vessels of the age, with other engravings, and is one of the most valuable publications in the country. Terms, single copies $5 per annum, or $2,50 per volume. Club Rates—Five copies for $20; thirteen copies for $50. Sample copies sent when requested. Address GRIFFITHS & BATES, Editors and Proprietors, 115 and 117 Nassau st., New York. 31

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POWER PLANERS—Persons wanting Iron Planers of superior workmanship, and that always give satisfaction, are recommended to the New Haven Manufacturing Co., New Haven, Ct. 31tf

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STAVE DRESSER AND JOINTER—For tight work decidedly the best and cheapest in use. Machines can be seen in operation at SHAW & KIBBES, Shook Manufactory, Buffalo, N. Y., and models may be seen at the office of the agent, JAMES S. POLHEMUS, 117 Pearl street, New York, to whom, or to the patentees, H. & L. D. BENSON, Jackson, Susquehanna Co., Pa., any communications may be addressed. 27 13*

1855—WOODWORTH'S PATENT Planing, Tonguing, and Grooving Machines.—The subscriber is constantly manufacturing, and has now for sale the largest and best assortment of these unrivalled machines to be found in the United States. Prices from $85 to $1450. Rights for sale in all the unoccupied Towns in New York and Northern Pennsylvania, JOHN GIBSON, Planing Mills, Albany, N. Y. 29 9*

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Science and Art.

History of Reaping Machines.—No. 28.

On page 174 is the claim of David Russell, of Drewersburgh, Ind., for an endless chain cutter. On the same page there is also the claim of R. A. Morrison, of Lawrenceville, Va., embracing an endless converging belt of rakes, and weighted spring door for receiving the grain, and delivering it in weighted compact bundles. On page 102, same Vol., is the claim of a patent granted to Jas. H. Maydole and A. W. Norse, of Eaton, N. Y., embracing an adjustable roller in combination with the harvester. On the same date, another patent was granted to Cyrenus Wheeler, Jr., of Poplar Ridge, New York, which is represented by fig. 1, (figs. 56, 57, and fig. 58 of the series,) a geometrical perspective of the machine; fig. 2 a perspective view of the table for receiving the cut grain, and fig. 3 a view of the underside of a section of cutter bar, with cutters and spring attached. This machine has a set of stationary and a set of active cutters, and makes a clipping cut. *a*, fig. 1, is the frame of the machine; *b* the driving wheel, the run attached to it has internal cogs; *d* is the driving-wheel shaft; E a wheel of the same size as *b*, on shaft *d*, on the outside of the frame, and turning freely on its shaft to support the frame. *f* is a pinion; *g* a face wheel, on shaft *h*; *i* is a pinion gearing with face wheel, *g*. *k* is an eccentric on the end of the shaft of pinion, *i*. *l* is an arched bar on the end of the frame, secured by a bolt, *a b*, on which it turns. *m m* is a rule joint, which admits of the rising and falling of the outer end of the cutter bar, *x x*. *n n* are segments of circles one of which is firmly attached to the arch, *l*, and the other to a socket, they support the joint, *m*. The cutter bar, *x x*, is fastened to a socket by bolts; *p* is a standard attached to the socket by a bolt. A short connecting rod is attached to the eccentric, *k*; it has a slide on its inner end connected to a driving rod, which gives motion to cutters, *l l*. *r* is a caster wheel, the spindle of which passes through the bail, *h h*. *t* is a rod and chain, connecting the standard, *p*, to the lever, W, in front. The chain, *t*, passes around a pulley on arch, *l*; the operator of the lever, W, through the rod and chain, can raise the cutter bar, *x x*; *w* in front represents a roller to which the tongue, X, is attached. *y* is the seat for the raker, and Z the seat of the driving operator. A long lever passes over the top of the vertical spindle of the caster wheel, *r*. It is connected at its back end with the arch, *l*, by straps (*d d*,) and it extends forward of the driver's seat, where it is secured at any required hight by the pin (*f f*,) passing through the standard, (*b b*.) This lever the driver uses to press down the vertical spindle of the caster wheel, *r*, to raise the hind part of the machine from the ground, and also the heel of the cutter bar, *x x*, for passing obstructions when cutting grass or grain, or to pass from one field to another. The lever, W, through its connections, raises the outer end of the cutter bar, *x x*, for passing obstructions, or moving from one field to another. (*h h*) is a strong iron bail, with a lip attached to its upper part; it is of sufficient hight to allow the caster wheel, *r*, to play freely under it. The space between the lower ends of the bail, (*h h*,) should be equal to the width of the frame, *a*, to which it is bolted. This bail is a stand for the wheel, *r*, to keep it in proper position, and as an attachment for the graduating screw at (*h h*), which passes through part of the arch, *l*, which is kept in any required position by screw bolts, to raise and depress the points of the cutters, (*r r*) and (*l l*,) for operation. (*j j*) is a rod attached to standard, *p*, near its base, by a screw, and at its other end to the knee, (*k k*,) which projects outward beyond the wheel. This rod strengthens the rule joint, *m*. Through the cutter bar, *x x*, there are bolt holes behind those, (*s s*,) and in front of circular ribs on the cutter bar.—These serve to let dirt and grit pass through, that would otherwise accumulate on the stationary cutters, *r r*. The cavities (*y y*) are for inserting the stationary cutters (*r r*).—The bolts (*p p*) secure the movable cutters, *l l*, in the holes (*s s*). The stationary cutters are about nine inches long, and from two to three inches in their greatest width. They are narrow at their back ends, and are secured by rivets, (*c s*,) fig. 3. They are ground to present narrow cutting edges for the movable cutters, *l l*, to operate against. *m m* are the shanks of the movable cutters; these are from three to five inches long, and from two to three inches broad at their widest part. They are made concave on the under side, and when ground present a narrow cutting edge.

Fig. 1

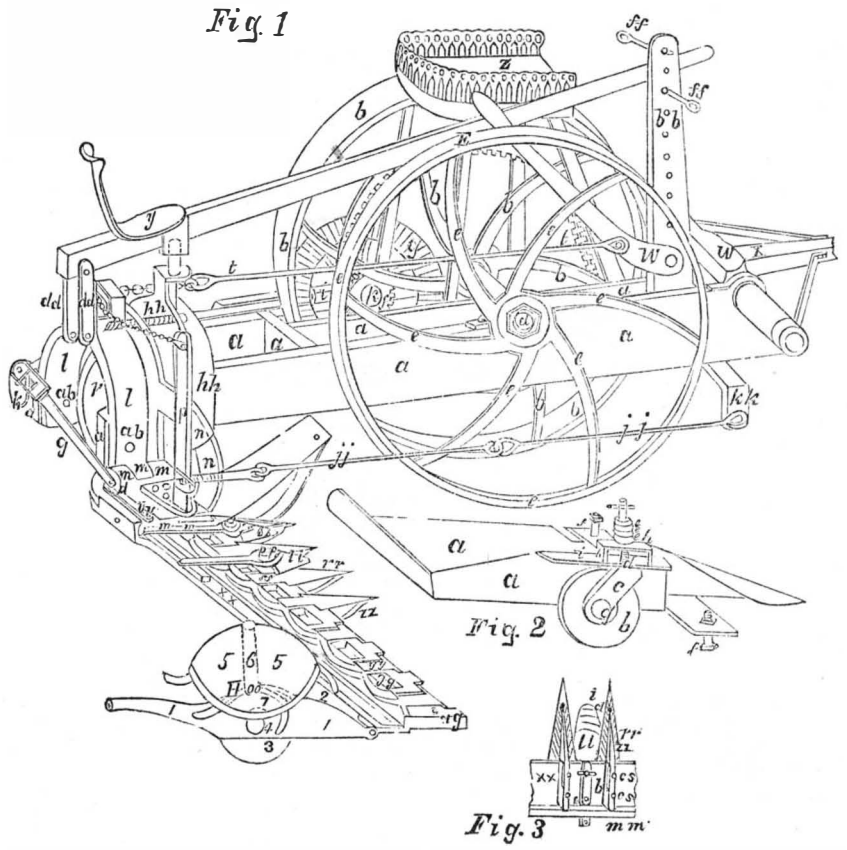

Fig. 2

Fig. 3

On the under side of shanks, *m m*, are projections to keep these shanks free from the cutter bar, *x x*, and to leave an open space between them of about half an inch. The pins (*v v*) (*d*) secure the shanks to the connecting rod. The bolts [*p p*] pass through the shanks of cutters [*l l*] and through the bar [*x x*,] and a flat spring of steel, and is retained by the pin, [*b*] fig. 3. The bolts, *p p*, press the edges of the movable closely against those of the stationary cutters, and with an elastic pressure by means of the springs [*z z*] and guards; they are united to the ribs on the under side, fig. 3, by rivets, [*c s*]; they curve upwards, and are united at their points to those of the stationary cutters, and protect them from injury when the machine is in operation.

1, 2, 3, 4, 5, 6, 7, fig. 1, form a revolving rake; 3 is a small wheel, and 1 1 a light frame attached to the outer end of the bar, *x x*, by a hinge. The shaft, 4, extends through the frame, and on its inner end is a small miter wheel. 5 is a wheel about ten inches in diameter, with a convex under surface; 6 is its vertical spindle. The wheel, 5, has a few fingers on its edge, curving backwards and downwards, to shed the grass freely while in motion. 2 is an apron fourteen inches long, and about seven inches wide; its forward edge nearly touches the cutter bar, *x x*, and its back edge reaches under the front edge of wheel 5; it is fastened to the frame, 1. The curved fingers of the wheel, 5, pass over the face of apron 2, from right to left, and remove the cut from the standing grass, leaving a clear and even track adjoining the standing grass, and depositing the cut grass free from bunches.

Fig. 2 is a view of the table for receiving the grain when the machine is used for a harvester. It is attached to the cutter bar, *x x*, fig. 1, by bolts [*f* fig. 2] passing through the holes [*a g* fig. 1,] *a a'*, fig. 2, is its frame and platform. It corresponds in length with the cutter bar, and is of sufficient width to hold the tallest grain; *b* is a small wheel on a shaft, *g*; *c* is a strap of spindle, *d*, the whole combined making a caster-wheel, attached to the outer end of table, *a*. The spindle, *d*, passes through a projection, *i*, and a cap, *h*, in which it turns freely. *e e e* are washers on the spindle, which, when placed below the projection, *i*, raise the table, *a*, to any required hight, and keep it and the cutter bar, *x x*, at such hight when used as a grain harvesting machine.

The claims are two in number, embracing the edged stationary cutters constructed and arranged as shown and described, in combination with the working cutters, *l l*, constructed and arranged as shown and described. The revolving track rake, 1, 2, 3, 4, 5, 6, 7, &c., fig. 1, constructed and arranged as shown and described, for the purpose set forth.

The patent of Mr. Wheeler, dated Dec. 5, 1854, embraces hanging the cutter bar by joints and segments to this main frame in such a manner as to give it an independent motion of the frame, to enable it to adapt itself to inequalities of ground. This figure shows a machine embracing the improvements of both patents. In operation, the inventor assures us, "it does its work beautiful and clean, and does not clog with grass or gum, and works well on uneven ground."

The Coal Produce of England.

Of all minerals which abound in Britain, the most important is coal, the advantages of which it is hardly possibly to exaggerate. The principal coal fields are found in the counties of Durham and Northumberland, and in South Wales. The anuual consumption of these black diamonds in Great Britain, was estimated by McCulloch in 1846, at 34,400,000 tuns, which added to 4,000,000, the amount of the exports for the same period, gives a total yield of 38,400,000 tuns.

This enormous draw upon the coal deposits, would seem to threaten, at no distant day, the partial if not entire exhaustion of this source of England's wealth; but Dr. Buckland states that the coal fields in South Wales are alone amply sufficient to supply the demand of England for coal for 2000 years.

In addition to this, we may state that there are in the West Riding of Yorkshire, and in Staffordshire, and in Flintshire, and Denbighshire, many extensive coal fields hitherto untouched. Add to this the immense coal deposits in Scotland, and the supply of coal in the United Kingdom may be considered almost inexhaustible.

The coal mines of England are most of them of great depth. In the Pemberton Pit, Sunderland, the coal is raised one lift a distance of 560 yards. In South Wales a shaft over 150 feet is rare. The mode of working is consequently different. In Wales the mines are worked by means of tunnels and levels, instead of pits and deep shafts, as in England.

Cure for Ringbone.

A correspondent of the Boston (Mass.) *Cultivator*, gives the followimg:—"Take high wines or cider brandy, add saltpetre as much as will dissolve, and wash the ringbone two or three times a day. One of my neighbors cured one of three or four years standing by the application of this a few times."

LITERARY NOTICES.

STATE PRISONS REPORT—Report of the Commissioners appointed to investigate the pecuniary affairs of the several State Prisons of the State of New York. We are indebted to Nicholas Seagrist, Esq., of the Assembly, for a copy of this voluminous work, covering nearly 1000 pages. We suppose it is useful to somebody, but we cannot for the life of us see the necessity of such extravagant waste of paper as is exhibited in this mountainous work. It shows up considerable swindling, no doubt, among the officials, but this being expected and understood now-a-days among politicians, it is hardly fair for those having the power, at State expense, to make a public exposure of those brethren who are more fortunate in getting into the fat offices. Who shall become the historian of the purity of our Republican statesmen? A great theme.

OLD BLACKWOOD—Blackwood's Edinburgh Magazine for this month, has been promptly republished by Messrs. Leonard Scott & Co., No. 54 Gold street, this city. It contains a continuation of a story of the Campaign in the Crimea, by an officer in the camp, and is the most truthful and best account of the campaign published. Zadee, a romance, is also continued. This monthly magazine has the highest reputation (Tory though it be) for literary merit, in the world.

BIBLIOTHECA SACRA—The April number of this able Theological Review contains the conclusion of Rev. J. O. Means essay on the Narrative of Creation, as described in Genesis, which ends unconclusively. An article on Genius, by Prof. Taylor, of Amherst College, is worth careful reading; but the most interesting to Christian minds in the whole number, is one on Richard Baxter's End of Controversy. To a scientific article on the conservative use of the eyes, by Geo. A. Bethune, M. D., we would especially direct the attention of students in colleges, and all those engaged in literary pursuits. Published by Warren F. Draper, Andover, Mass.

THE CAROLINA CULTIVATOR—This is a very neat and ably conducted Monthly, just commenced at Raleigh, N. C., by W. D. Cooke. It deserves a hearty support from the people of North Carolina.

THE NATURALIZATION LAWS—We are indebted to Stringer and Townsend, this city, for a copy of this useful pamphlet—published by D. M. Dewey, Arcade Hall, Rochester. It contains a synopsis of the above laws of all the States, and the forms for naturalization. This is a most opportune work; it is edited well, and should be in the possession of every citizen and resident of the United States.

NEW YORK QUARTERLY REVIEW—The April number of this able Review contains a thorough-going leading article on the Government of New York City, which convinces us that we have very little to boast of respecting municipal law, and the execution of it. We heartily recommend this essay to every citizen of New York. An article on the modern architecture of New York, awards the palm to the Astor House, as being externally the best hotel in the city, and superior in chastened richness of design to all the newer and more flashy hotels in the city. This solid Quarterly is published by Jas. G. Reed, 348 Broadway.

COACHMAKERS' ILLUSTRATED MAGAZINE—The April number of this excellent magazine, edited and published by C. W. Saladee, Columbus, Ohio, contains two plates illustrating omnibuses and buggies, besides quite a number of excellent wood engravings representing improvements in carriage-making: it is an ably conducted magazine.

Inventors, and Manufacturers

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